Two Sides of the Coin: Examining the Role of Character-Similarity and Identification in the Effects of a Narrative on Children's Learning and Bias

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Abstract

When identifying with a character in a narrative, one experiences the narrative from the character's perspective, as if the events were happening to oneself. Many researchers and theorists have suggested that a character's similarity to the audience member should be related to identification. Although some research supports this relationship, it has rarely been tested directly. Additionally, higher identification may lead to more learning from a narrative. These two proposed links, between character similarity and identification, and between identification and learning, suggest that children may learn more from narratives that contain characters who are similar to them than from narratives with dissimilar characters. There is, however, another side to the coin: Reading about (and perhaps identifying with) dissimilar characters may decrease children's outgroup biases. This study tests these two possibilities, examining race as a point of similarity. Findings suggest that (1) White children may be more likely to identify with own-race characters than with other-race characters, (2) White children do not appear to learn more from stories with own-race characters than those with other-race characters when knowledge is probed via specific questions, but do freely recall more information from stories with own-race characters, and (3) Exposure to a storybook with a Black main character does not reduce White children's racial bias. These findings inform our understanding of the nature and effects of children's identification with own- and other-race characters.

Keywords: Fiction, narratives, learning, bias, identification, race

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Chapter 1 - Introduction

Overview

Media pervades the lives of young children: On average, five- to eight-year-olds read or are read to for over 30 minutes and watch almost 1.5 hours of television and DVDs every day (Common Sense Media, 2013). In part, media is pure entertainment: Children read or watch for fun. However, media is also used in school settings, and it has profound educational possibilities both inside and outside school. Indeed, media activity could have important lasting effects on children's cognition and behavior. The current study focuses on one potentially important feature that may be related to how children are affected by media: children's identification with the characters in a narrative. When one identifies with a character, one experiences the narrative from the character's perspective, temporarily losing one's own identity as an audience member (Cohen, 2001). There is some evidence that even young children identify with characters in narratives, in that they adopt the main character's physical and mental perspective (Fecica & O'Neill, 2010, Rall & Harris, 2000; O'Neill & Shultis, 2007). However, story- and individual-related factors may influence the extent to which a child identifies with a particular character. Specifically, there is a long-standing idea in the literature that similarity of the character to the audience member, in terms such as race or gender, should lead to more identification. Although some research supports this relationship, it has rarely been tested directly.

If accurate, the proposition that children identify more with characters of the same gender or race could have far-ranging implications. One important implication relates to children's learning from narratives. There is evidence that children can learn from narratives under certain circumstances (Fazio & Marsh, 2008; Richert, Shawber, Hoffman, & Taylor, 2009), and some researchers have suggested that individuals learn more from a narrative when they identify with the main character (Calvert, Strouse & Murray, 2006; Maccoby & Wilson, 1957). These two

proposed links, between character similarity and identification, and between identification and learning, suggest that if children's books or television shows contain characters who are dissimilar to them, they may be less likely to learn from these specific sources.

This possibility, in tandem with the fact that Black protagonists are vastly underrepresented in children's books (Pescosolido, Grauerholz, and Milkie, 1997), indicates that Black children may be less likely to learn from these materials. Thus the current study examines whether exposure to an own-race character in a narrative leads to more learning and whether identification with the character mediates these effects.

There is, however, another side to the coin: Exposing children to media that includes characters who differ from them may have other important benefits. Through reading about (and perhaps identifying with) dissimilar characters, children may come to have more positive feelings toward outgroups. Specifically, the lack of representation of Black characters in children's media may contribute to White children's early-developing ingroup biases (see Raabe & Beelmann, 2011 for a review). At the very least, this lack of representation does nothing to counter these in-group biases, and its converse might help ameliorate them.

Extended contact theory suggests that having knowledge that an ingroup member has a positive relationship with an outgroup member should be effective in reducing prejudice (Wright et al., 1997). Indeed, some studies have shown that even exposure to ingroup-outgroup friendships in a fictional storybook can reduce prejudice toward disabled children (Cameron & Rutland, 2006) and refugees (Cameron et al., 2006). However, these studies do not address whether the friendship between group members is necessary or whether exposure to an outgroup character would be sufficient to reduce prejudice. A related line of research has found that feeling empathy toward and taking the perspective of an outgroup character in a narrative can

improve attitudes toward outgroups, including Blacks (Todd, Bodenhausen, Richeson, & Galsinky, 2011), Arab-Muslims (Johnson, Jasper, Griffin, & Huffman, 2013), and even stigmatized groups like drug addicts (Batson, Chang, Orr, & Rowland, 2002). Whether parallel effects could be obtained with children—and at what ages—is not known.

The current study examines these two sides of the same coin – the possibility that exposure to an own-race character in a narrative may lead to more learning, and that exposure to an other-race character may reduce bias toward that racial group. Furthermore, this study assesses whether identification with the character may be related to these effects.

As background, I first expound on the definition of identification and distinguish it from related constructs, then review research in three areas: (1) the relationship between character similarity and identification, (2) learning from fiction, including the possible effects of identification and character similarity, and (3) reducing bias through fiction, also including the possible effects of identification.

It is important to note that in this literature I use the term "narrative" to include many different formats, such as written narratives like storybooks, novels, or short stories, audio-based narratives like radio, audio-visual narratives like film or television, and interactive audio-visual experiences like video games or virtual realities. Theoretically, identification can be experienced in all of these mediums, although some scholars have argued that film tends to engender more of a spectator role rather than identification, given that the visual perspective is usually not the perspective of the character (see Cohen, 2001; Oatley, 1999). On another view, the greater fidelity of mediums with audio and visual stimulation may increase individuals' identification with the character by causing the experience to feel more life-like, leading to the hypothesis that interactive experiences should elicit the most identification, followed by film, then audio, with

written narratives eliciting the lowest levels of identification (see Green et al.[2008] and Okdie et al. [2014] for similar arguments regarding narrative transportation). However, little empirical data is available, as research has primarily focused on one of these mediums at a time rather than comparing them. Here I discuss evidence from a variety of formats and mediums, as they relate to identification.

Identification

Defining identification. I adopt Cohen's (2001) commonly used definition of identification: "A mechanism through which audience members experience reception and interpretation of the text from the inside, as if the events were happening to them" (p. 245). According to this definition, identification is experiential and refers to a specific type of experience that an audience member has while engaging with a narrative. This definition is also in line with the operationalization provided to children by developmental psychologists Jose and Brewer (1984) and adapted for the current study: "Sometimes when you read a story you actually see yourself as the story character. In a funny sort of way you become the other person..." (p. 914).

An important aspect of this definition of identification is that the experience involves some amount of "losing oneself" in the fictional medium. As Cohen (2001) writes, "While strongly identifying, the audience member ceases to be aware of his or her social role as an audience member and temporarily (but usually repeatedly) adopts the perspective of the character with whom he or she identifies" (p. 251). Thus, identification can be thought of as decreasing one's focus on objective self-awareness, the reflection on one's own existence, while retaining subjective self-awareness, or the sense of one's existence as a perceiver of the outside world (Duval & Wickland, 1972). This characteristic is in line with Kaufman and Libby's

(2012) characterization of "experience-taking": Audience members let go of their own identity temporarily to take on the identity, emotions, and goals of the character. Indeed, they found that making participants more self-focused by placing a mirror in the testing cubicle decreased experience-taking, suggesting that being more self-focused interferes with adopting a character's subjective point of view. Similarly, we can consider identification from a dynamic self-concept perspective, in which one's self-concept consists of a collection of self-representations and the working self-concept is a subset of those self-representations that are accessible at a given moment (Markus & Wurf, 1987). These self-representations are activated depending on social and motivational factors in the environment. Thus, the process of identification should change the environment from the real world to the world of the fictional narrative, leading to an activation of self-representations that reflect the character with whom one is identifying, or a temporary merging with or adoption of the character's working self-concept.

In a more recent formulation, Hood (2012) argues that the self is an illusion created by the brain constructing a model of the internal mind, just as it constructs a model of the external world from incomplete sensory information. He compares the self illusion to the idea of illusory contour perception in vision (Kanizsa, 1976): If you remove the surrounding context the illusory square disappears. Similarly, Hood argues that our sense of self is an illusion created by the external world: You create your sense of self through thinking about yourself in terms of external influences like family, work, social groups, etc. (similar to the idea of the "Looking Glass Self" [Mead, 1934]). In identification, when one becomes immersed in a fictional world and becomes temporarily less aware of the external world of reality, one's model of the self is then temporarily constructed by information from the fictional world rather than the real world, specifically information related to the character with whom one is identifying.

In another sense, the experiential definition of identification can be thought of as being in line with simulation theory. Simulation theory suggests that the way that we know about others' thoughts and feelings, or even our own thoughts and feelings in hypothetical situations, is by simulating the particular situation or experience to determine its probable results (Gordon, 1986; Shanton & Goldman, 2010). Simulation could explain the ability of young children to flexibly adapt during role play: In pretend play, a child playing the role of a character may simulate the character's thoughts and emotions in order to determine what to say or do next in the pretense (Harris, 2000). Even though a child may never have encountered a particular situation before, when encountering the situation during pretend play, the child imagines the situation the character is in and adopts, in pretense, the attitude that the character may have toward that situation. Similarly, fiction may prompt simulation in later childhood and through adulthood. As we read about or watch a character in a fictional narrative, we may simulate their thoughts and feelings, perhaps even predicting what the character may say or do next. As Harris (2000) writes, when encountering a narrative, readers "are invited to view the world from a point of view that is not their own" (p. 48). In order to view the fictional world from the character's point of view, people may imagine the situation of the character and simulate the character's attitudes, thoughts, and feelings.

Indeed, there is evidence in line with simulation theory suggesting that we experience fictional narratives from characters' points of view. As readers track different aspects of a narrative, similar regions of the brain are activated as are activated during parallel real-world activities, suggesting that readers mentally simulate the perceptual and motor action of characters in a narrative (Speer, Reynolds, Swallow, & Zacks, 2009). Other research has found that people read sentences that are consistent with the spatial point of view of the protagonist more quickly

than sentences that are inconsistent with that point of view, and are likely to misrecall inconsistent sentences as consistent (Black, Turner, & Bower, 1979). For example, after: "Alan hated to lose at tennis. Alan played a game of tennis with Liz," a consistent continuation would be, "After winning, she *came* up and shook his hand," whereas an inconsistent continuation would be, "After winning, she *went* up and shook his hand" (Black, Turner, & Bower, 1979, p. 191). Participants in the study read the consistent continuations more quickly and, when asked to recall the sentence, were likely to misrecall the inconsistent sentences, replacing the inconsistent verb with a consistent one, i.e., misrecalling "she went up" as "she came up" (Black, Turner, & Bower, 1979). Children as young as three show a similar effect, misrecalling verbs that are inconsistent with the perspective of a narrative's protagonist and instead replacing them with consistent verbs, suggesting that even young children take the perspective of the protagonist in a narrative (Rall & Harris, 2000; Ziegler, Mitchell, & Currie, 2005).

Readers also respond more quickly to questions referring to an item in close proximity to a character's current location in a narrative than to items further away (Bower & Morrow, 1990; Glenberg, Meyer, & Lindem, 1987). For example, participants either heard a story in which a character put his sweatshirt *on* and jogged halfway around a lake, or took his sweatshirt *off* and jogged halfway around the lake. They were then asked whether the word "sweatshirt" occurred in the narrative. Participants who heard about the character putting his sweatshirt on responded to the question more quickly, presumably because the sweatshirt was closer in their situational or mental model of the narrative–with the character, rather than at the original side of the lake where the sweatshirt had been left (Glenberg, Meyer, & Lindem, 1987). Children also appear to form mental models of described scenes from an internal perspective, responding more quickly and more accurately to questions referring to items close to the character in the described scene

compared to those items that were far away from the character (Barnes, Raghubar, Faulkner, & Denton, 2013; see also Ziegler & Acquah, 2013). Additionally, there is evidence that children simulate a character's movements spontaneously and in real-time: Four-year-olds process a sentence more quickly when a character is said to be driving somewhere compared to when a character is said to be walking somewhere (Fecica & O'Neill, 2010). Finally, adults respond more quickly even when questions refer to a location that was only imagined by the character, rather than physically visited, suggesting that readers track characters' mental as well as spatial perspective (Bower & Morrow, 1990). By age 5, children also seem to adopt a character's mental perspective, focusing on the location that a character is thinking about rather than the character's physical location (O'Neill & Shultis, 2007).

Cumulatively, these studies suggest that readers experience narratives from the main character's perspective, both physically and mentally, and that this tendency is present in early childhood. Thus, the default position for both adults and children is to engage in simulation or take on characters' perspectives to some extent. However, this experience may vary in intensity. Identification can be thought of as an intensified version of this natural tendency to simulate a character's thoughts and emotions or to take the perspective of a character in a narrative. Further, identification theoretically exists on a continuum; as described above, particularly strong identification involves losing oneself while taking on the role of the character, whereas a weaker form of identification may include taking the perspective of the character but also being aware of one's own role as an audience member throughout the experience. These relationships are depicted in Figure 1.

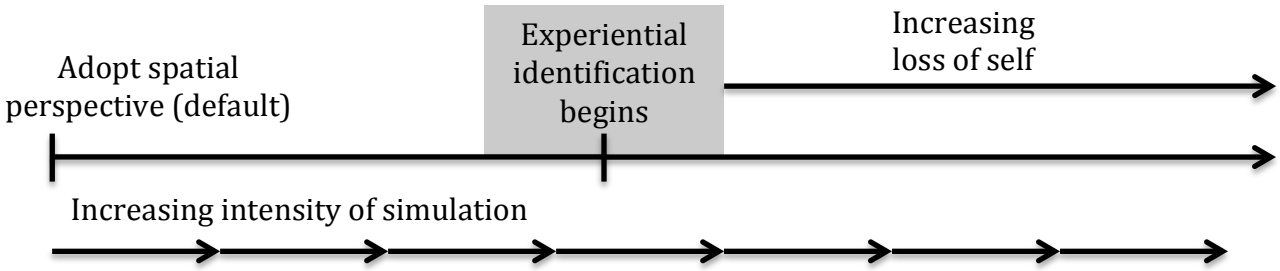

Figure 1. Conceptual model of the relationship between simulation and identification

Distinguishing identification from related concepts. Identification is only one of several related concepts discussed in the literature on narrative and media involvement. Here I briefly discuss parasocial interaction, narrative transportation, and presence in order to distinguish these concepts from identification. Importantly, these phenomena can co-occur and may be related to some extent. They are, however, conceptually distinct from identification in important ways. See Table 1 for a summary of the distinctions between these concepts.

Parasocial interaction refers to the feeling of having a social relationship with a media character and is often discussed as a pseudo-friendship in which the viewer or reader imaginatively interacts with the character (e.g., Eyal & Rubin, 2003; Hoffner, 1996). Parasocial interaction is in some ways similar to children's engagement with imaginary companions in that the individual has a pseudo-relationship with a non-real entity. Although most imaginary companions appear to be invented by the child, some originate from media sources, making these relationships quite comparable to parasocial interaction (see Taylor, 1999). In comparison, then, the experience of parasocial interaction is one of having a relationship with a character, whereas the experience of identification is more in line with becoming the character (see Giles, 2002 for a review of the literature on parasocial interaction). Thus, the experience and consequences of identification and parasocial interaction may be quite disparate.

Another important construct from which identification should be distinguished is narrative transportation, defined as being absorbed in or transported into a story or narrative world through attention, imagery, and feelings (Green & Brock, 2000). The key distinction between narrative transportation and identification is that narrative transportation refers to engagement with the narrative or environment as a whole, whereas identification refers to taking the perspective of a particular character (Sestir & Green, 2010). Although there is evidence that narrative transportation and identification may be related, they are distinct processes affected by different manipulations (Tal-Or & Cohen, 2010; Tukachinsky, 2014). Thus, it is important to disentangle effects that may be related to perspective taking or identification specifically from those that may be related to engagement with narratives more generally.

A final related construct is presence, which refers to the "perceptual illusion of non-mediation" (Lombard & Ditton, 1997, Presence Explicated section, para.1) or a "psychological state in which the virtuality of experience is unnoticed" (Lee, 2004, p. 32). This term is primarily used in the literature on video games, but according to some conceptualizations, it may be applicable in more traditional media as well. The primary distinction between presence and identification is that presence refers to a spatial or perceptual experience, whereas identification refers to a mental or emotional experience. However, aspects of presence can refer to either a character-specific experience, known as self presence, or an experience that is more general to the narrative or environment as a whole, known as spatial presence and social presence (Lee, 2004; Tamborini & Skalski, 2006). Self presence is similar to identification in that it refers to becoming the character or experiencing one's virtual self as if it were the actual self, whereas spatial and social presence refer to more general perceptions of non-mediation of the physical and social environment, respectively.

Table 1
Distinctions Between the Concepts of Identification, Parasocial Interaction, Narrative Transportation, and Presence

	Psychological domain	Specificity	Relationship to character
Identification	Mental/emotional	Character-specific	Becoming character
Parasocial interaction	Mental/emotional	Character-specific	Character as social partner
Narrative transportation	Mental/emotional	General to narrative	—
Presence	Spatial/perceptual	Both specific and general aspects	Becoming character or self as character in virtual world

Character similarity and identification

Some past research has used the term "identification" to refer to perceived similarity: how similar the audience member feels to a character. However, feelings of similarity are not identification per se. Rather, having these feelings toward a character may commonly lead to the experience of identification: If an audience member feels similar to a character, he or she might be more likely to experience the narrative through that character's perspective (Cohen, 2001). However, feelings of similarity may be based on multiple factors including demographic likenesses, as well as parallel emotions or situations (Cohen, 2001). For example, one may feel very dissimilar to a time-traveling alien character in a narrative but identify with the character's feelings of isolation. Thus, although feeling similar to a character may be related to experiential identification, the concepts are not interchangeable.

Based on the idea that similarity and identification are theoretically related, some studies have tested whether reader-protagonist similarities (e.g., gender, race) are related to outcomes of interest. Such studies have often been cited as showing an effect of identification. For example, people often assume that individuals identify more with own-gender characters and draw conclusions about the nature or effect of identification based on studies that report own-gender

vs. other-gender character comparisons. In one such instance, McArthur and Eisen (1976) used gender similarity as a proxy for identification and found that after hearing a story about a character working hard to solve a problem, boys persisted longer on a difficult task when the story character was a boy than when the story character was a girl, whereas girls showed a non-significant trend in the opposite direction. These results suggest that perhaps children imitated the behavior more after seeing a same-gender character because they identified more with the same-gender character than an opposite-gender character. Importantly, because this study and others like it (e.g., Bleakley, Westerberg, & Hopkins, 1988; Gottfried & Katz, 1977) do not measure identification directly, one cannot be confident that any effects are due to identification per se or to other mechanisms related to gender more specifically.

Importantly, Bandura is often cited as showing an effect of gender on identification, but the term as Bandura has used it is quite different from experiential identification with a media character. Specifically, Bandura's (1969) definition of identification is "a process in which a person patterns his [*sic*] thoughts, feelings, or actions after another person who serves as a model" (p. 214). For Bandura, then, identification is equated with an imitative outcome (i.e., social learning), whereas experiential identification with a media character is defined by the characteristics of the processes (i.e., seeing yourself as the character, feeling as if the story events are happening to you). Bandura's research on similarity and imitation is relevant to the issues at hand and thus is discussed in the section on learning below, but his studies in this line did not theoretically or empirically examine experiential identification as it is discussed here.

The few studies that have empirically examined the relationship between character similarity and identification provide mixed results. In one study, Maccoby and Wilson (1957) showed children a film involving both male and female characters, and afterwards asked them

which character they believed was most like them. Children reported feeling like the own-gender characters more frequently than the other-gender characters. Other research with adults also provides suggestive evidence. Bower (1978) manipulated participants' mood (happy/sad) before reading a narrative and found that participants reported "identifying with" the character that shared their mood rather than the character in the opposite-valence mood. Two other studies using video games as a medium found that, when using a personalized rather than a generic avatar, adult participants reported more experiential identification (Fischer, Kastenmuller, & Grietmeyer, 2010; Williams, 2011).

The studies discussed so far have attempted to increase identification by increasing similarity, but theoretically, it should also be the case that dissimilarities would lead to lower identification. Indeed, Kaufman and Libby (2012) found that revealing a character's dissimilarity to the reader (in sexual orientation or race) early in a story led to lower levels of experiential identification compared to revealing the same information later in the story. In another study in the same line, they found that college student participants reported identifying more with a character described as being from their own university compared to when the character was described as being from another university.

However, some of the research that set out to investigate the link between similarity and identification does not report positive results. In a meta-analysis examining manipulations of experiential identification, Tukachinksy (2014) considered 17 studies that manipulated similarity through either race-similarity, gender-similarity, physical appearance, or situation (e.g., stating that the character is a typical undergrad or survived his parents). The results showed that manipulating objective similarity was not consistently related to identification. Instead, similarity manipulations were the least effective method of manipulating identification; editing the

emotional content and perspective-taking information in the narrative was more successful. A recent study not included in the meta-analysis found similar results: Although college student participants reported feeling more similar to a character who shared their same living arrangement (with parents or in student housing), they did not report more experiential identification with the similar character (de Graaf, 2014).

In sum, although some results are positive, cumulatively these data shed doubt on the notion that any type of similarity can be effectively used as a proxy for identification. The studies that found positive effects have fallen into three specific categories that may limit their generalizability to other types of similarities and other contexts. First, gender and mood similarity were related to identification when participants had a forced choice ("Who do you identify with?") rather than being asked to rate each character separately; the forced choice method may amplify small differences in absolute levels of identification (Bower, 1978; Maccoby &Wilson, 1957). Second, the studies that found that physical similarity was related to identification in video games share an important confound: In the similar condition, players created their avatars, whereas in the dissimilar condition they did not. Thus it is possible that participants identified more strongly in the similar condition because they felt a heightened sense of ownership after creating their avatar, or because they made decisions about their avatar (see Cordova & Lepper, 1996), rather than because the avatar was similar to themselves in appearance (Fischer, Kastenmuller, & Grietmeyer, 2010; Williams, 2011). Finally, Kaufman and Libby (2012) showed that dissimilarity led to reduced identification, but in both studies the dissimilar character was also a member of a relatively salient outgroup (in sexual orientation, race, or university membership), which may have led to less identification even if a more benign dissimilarity would not (e.g., dissimilarity in gender or physical characteristics). Clearly, the link

between character similarity and experiential identification is tenuous at best, and further research is needed.

Furthermore, only one study reviewed here (Maccoby & Wilson, 1957) investigated the relationship between character similarity and experiential identification in children. The adult literature may inform our expectations about children, but it is also possible that the relationship between these variables differs across the lifespan. In one view, similarity to a character may be especially predictive of children's identification with story characters given children's lack of perspective taking skills (relative to adults; see Flavell, 1999 for a review). If taking the perspective of a character in a story is effortful for young children, the difficulty may be reduced when the character is similar to the child. On the other hand, the studies described above indicate that children as young as 4 do process narratives from the perspective of a character, suggesting that at least in the context of narratives, perspective taking may the default rather than an effortful process. Indeed, children also appear to take on the role of a character quite easily in their pretend play (Harris, 2000). To the extent that children are as likely as adults to take the perspective of a character, similarity of the character may play a similar role in identification in childhood as it does later in life.

The current study begins to fill this gap in the literature by investigating the relationship between character similarity and experiential identification in childhood. One challenge in the existing literature is that young children's low verbal comprehension limits the use of self-report measures of experiential identification. Correspondingly, many past studies that have been cited as showing effects of identification actually measured related variables such as liking, perceived similarity and desire to be like the character. As discussed above, although these constructs may be related to experiential identification, they are not synonymous with the experience of

identifying with a character as it is discussed in the adult literature. Thus, the current study investigates the effects of identification in middle childhood, using 6- to 8-year-old children as participants. By these ages, I expected (and had pilot data suggesting) that children would be able to meaningfully self-report experiential identification. Based on the results of this study, future research may test whether similar or simplified measures could be used to assess experiential identification in younger children.

Learning from fiction and effects of identification/character similarity

Many researchers have investigated whether people, both children and adults, learn new information from fiction. Below, I review this research, and then discuss theory and research specifically examining the effects of identification and character similarity on learning from fiction.

Learning from fiction. A growing literature suggests that both adults and children can learn from fictional narratives (e.g., Fazio & Marsh, 2008; Marsh, Meade, & Roediger, 2003). For example, Fazio and Marsh (2008) exposed 5- to 7-year-old children to short fictional stories that included both correct facts (e.g., autumn is another word for fall) and incorrect facts (e.g., autumn is another word for spring). They found that children used information from the story on a test of general knowledge, reporting as true both correct and incorrect facts.

Other studies suggest that while it is possible for children to learn from fictional sources, a variety of story-related and child-related factors influence the extent to which learning occurs. In one series of studies, preschoolers were more likely to transfer analogical problem solutions from storybooks to a real-world situation when the stories included real people rather than fantasy characters (Richert, Shawber, Hoffman, & Taylor, 2009). Similarly, Walker, Ganea, and Gopnik (2012) showed that children were also more likely to generalize a novel causal fact to the

real world when the story was realistic rather than fantastical. A further study suggested that children's transfer of problem solutions from fantasy stories to reality was related to their fantasy-orientation: Children who were more involved in fantasy in their everyday lives were less likely to transfer the solutions, suggesting that these children may have learned from their experiences that information encountered in fantasy contexts cannot be applied in reality (Richert & Smith, 2011). Thus, the existing literature in this domain both provide evidence of learning from fiction during childhood and suggest limits and moderators of such learning. Given that fantasy content appears to be a limiting factor, the current study uses a realistic story to test children's learning.

Effects of identification and character similarity on learning from fiction. Another factor that may influence learning from fiction is identification with story characters. Perhaps when an audience member identifies with a character, he or she becomes more engaged in the narrative, leading to increased attention to the narrative content, which would then lead to more learning, memory, and comprehension (Bleakley, Westerberg, & Hopkins, 1988). Theoretically, character similarity could produce similar results--similarity may lead to identification, which should lead to greater attention and thus to greater learning (Gottfried & Katz, 1977; Rosekrans, 1967). A related possibility is that identification increases attention indirectly rather than directly. Perhaps when readers identify with a character, they no longer have to keep two perspectives in mind, their own and the character's. Tracking two perspectives uses substantial cognitive resources: Perspective-takers have to actively overcome their own perspective (Epley, Morewedge, & Keysar, 2004) and representing their own and another's perspective causes interference in both directions (Surtees & Apperly, 2012). During identification, however, the two perspectives are merged, perhaps reducing such interference. Because attention is no longer

being allocated to tracking two perspectives, cognitive resources may be freed up to pay greater attention to the narrative itself. Both of these explanations suggest that there is not a quality specific to identification that leads to greater learning, but rather that identification is one way to increase attention and interest, which then has a causal effect on learning.

Another mechanism that is often cited as explaining why identification may increase learning is related to social cognitive theory (e.g., De Graaf, Hoeken, Sanders, & Beentjes, 2012; Calvert, Strouse, & Murray, 2006). Social cognitive theory proposes that people learn behavior vicariously, through observing the behavior of models (Bandura, 1971, 1986). It has been extensively applied to narrative and media effects (Bandura, 2004; Moyer-Gusé, 2008). Many researchers who cite social cognitive theory in relation to identification effects refer to similarity as an important factor. Bandura described the importance of similarity primarily in terms of self-efficacy, or the belief that one can successfully perform a given behavior (Bandura, 2004). Social modeling can provide vicarious efficacy information, such that seeing another person successfully perform a behavior increases one's own feelings of self-efficacy (Bandura, 1986). Furthermore, similarity to the model increases the effect by increasing personal relevance. Indeed, Bandura (1986) indicates that being similar to a model on personal characteristics, like age or gender, strengthens observational learning because individuals overgeneralize which attributes predict performance on a particular task. For example, a girl's self-efficacy on a task might be more affected by seeing a female model than by seeing a male model because the child assumes that gender is relevant to task performance and applies the model's success to the gender category as a whole. Importantly, this proposal suggests that character similarity leads to greater learning through group categorization and overgeneralization, not necessarily through increased experiential identification.

However, some tenets of social cognitive theory might lead to the expectation that increased experiential identification should lead to more learning or behavior change. Bandura (2004) argues that the most effective way to influence efficacy is through mastery experiences, obtaining success through perseverant effort, whereas social modeling is the second most effective method. Thus, if experiential identification with characters makes social modeling more like having a direct mastery experience, the experience should lead to greater efficacy and thus greater observational learning (Dal Cin, Zanna, & Fond, 2004). As Bandura writes regarding personal and social change: "Seeing people similar to [the viewers] change their lives for the better not only conveys strategies for how to do it, but raises television viewers' sense of efficacy that they too can succeed" (Bandura, 2004, p. 83).

Some related empirical evidence with adults supports a relationship between identification and learning. In one study (previously discussed above in regards to similarity and identification), participants were induced to feel either happy or sad, and then read a short story about one happy and one sad character. One day later, participants remembered more about the character who shared their mood at the time they read the story. Participants were also asked which character they identified with, and all participants reported identifying with the same-mood character (Bower, 1978). These results may suggest that mood similarity leads to greater experiential identification, which then leads to greater memory for that character. Further evidence comes from a study in which a measure of "fantasy empathy," an assessment of individuals' tendency to empathize with characters in fiction, was related to plot comprehension in high school and college students watching a romantic film (Calvert, Strouse, & Murray, 2006). Individuals who were more empathetic may have identified with the characters more and thus been better able to comprehend the plot. In the current study, I measure identification with

characters directly rather than using individual differences in trait empathy as a proxy for identification.

Other research has not tested learning directly, but rather measured imitation after exposure to a narrative, which can be seen as a specific type of learning, or evidence of learning. In one such study, described previously, McArthur and Eisen (1976) found that after hearing a story about a character working hard to solve a problem, boys persisted longer on a difficult task when the story character was a boy than when the story character was a girl, whereas girls showed a non-significant trend in the opposite direction. These results suggest that perhaps children imitated the behavior more after seeing an own-gender character because they identified more with the own-gender character than an other-gender character. In another study, Rosekrans (1967) manipulated similarity by telling 11- to 14-year-old boy scouts that a model was also a boy scout, lived in the same city, and liked the same activities as the child, or that he was not a boy scout, lived somewhere far away, and did not like the same activities as the child. Children imitated the model's behavior in a war-strategy game to a greater extent when the model was described as similar than when the model was described as dissimilar. This finding also suggests that feeling similar to a character may lead to greater identification with the character, which then leads to greater imitation.

A more recent study by Calvert et al. (2007) involved an episode of *Dora the Explorer,* in which Dora models divergent thinking. They found that the more preschoolers reported feeling similar to Dora, the more they used divergent thinking after watching the episode. These results can also be interpreted as supporting the idea that similarity leads to identification, which then leads to increased imitation. However, children's reported feelings of similarity to Dora were not

related to their memory of story content, weakening the argument that similarity leads to more learning.

Other studies have also reported null or even negative findings. Bleakley, Westerberg, and Hopkins (1988) found that although children were more interested in a short story with an own-gender character than one with an other-gender character, gender-similarity did not influence performance on a comprehension measure. In another study, Casteel (1995) actually found the reverse of the expected effect in a study of Black middle-schoolers' story comprehension: Black students scored better on a comprehension test for stories about White characters than for stories about Black characters. This author suggests that perhaps Black students wanted to dissociate themselves from the Black characters due to their past experience with stories presenting Black characters with negative stereotypes. Regardless, this finding suggests that similar characters are not universally beneficial for learning.

Overall, the evidence that identification influences learning is mixed, and even the studies that show positive effects have methodological limitations that constrain conclusions Only a few of these studies manipulated identification, leaving open the possibility that in other studies both reported identification and learning are caused by some pre-existing characteristics of the participants. For example, in Calvert et al. (2007), preschoolers who were more creative might have been more likely to report feeling similar to Dora and also have been more likely to score highly on a divergent thinking measure. Despite the apparent interest in the topic of identification and learning, the literature in this area, although tentatively positive, remains inconclusive.

Reducing bias through fiction and effects of identification

Whereas character similarity may have a positive effect on learning from narratives, it is also possible that exposure to dissimilar characters in narratives may have another important benefit: Through reading about dissimilar characters, children may come to have more positive feelings toward outgroups. A significant literature has examined whether and how bias can be reduced through fiction. Below, I review this research, incorporating a discussion of theory and research specifically examining the effects of identification and perspective taking on reducing bias.

Much of the research that has been conducted aiming to reduce bias through fiction originates in extended contact theory (Wright, Aron, McLaughlin-Volpe, & Rope, 1997), which is an extension of the intergroup contact hypothesis (Allport, 1954). The intergroup contact hypothesis (Allport, 1954) proposes that introducing intergroup contact under certain conditions (equal status, cooperation toward common goals, and institutional support) can reduce negative intergroup attitudes. Extended contact theory (Wright et al., 1997) takes this idea further by suggesting that in place of direct contact, knowledge that an ingroup member has a close relationship with an outgroup member can be sufficient to improve intergroup attitudes. Other research has further extended this idea by presenting extended contact through stories. For example, Cameron and Rutland (2006) found that reading stories about a friendship between a disabled child and a non-disabled child improved elementary school student's attitudes toward disabled people. Cameron, Rutland, Brown, and Douch (2006) obtained similar results in reducing prejudice toward refugees. These results suggest that fiction can be an effective mechanism for reducing bias.

Importantly, extended contact focuses on identification with an ingroup member character in a story who is friends with an outgroup member, which then leads to more positive attitudes toward the outgroup. Thus these studies cannot shed light on whether fiction that does not focus on an ingroup-outgroup friendship would also be effective in reducing bias (Ortiz & Harwood, 2007; Paluck & Green, 2009; Park, 2012). The parasocial contact hypothesis (Schiappa, Gregg, & Hewes, 2005) proposes an alternative extension of Allport's (1954) intergroup contact hypothesis. This theory proposes that, if individuals' interactions with fictional characters are processed in a similar manner as interpersonal interactions, then these parasocial interactions with media characters from stigmatized groups may also reduce bias (see also Fujioka, 1999). Indeed, these authors found that viewing television shows portraying gay men led to improved attitudes toward the group as a whole (Schiappa, Gregg, & Hewes, 2005).

Another line of theory and research has suggested that an alternative mechanism to reduce bias through fiction may be identifying with and taking the perspective of the outgroup character. To the extent that a reader or viewer of fiction identifies with a character, the ingroup-outgroup distinction may be reduced, leading to reduced social distance toward members of the outgroup (Slater, Johnson, Cohen, Comello, & Ewoldsen, 2014). In a seminal study, Batson et al. (1997) showed that taking the perspective of a member of a stigmatized group in a non-fictional narrative led to reduced bias toward the stigmatized group, by inducing empathy and positive feelings for the individual group member. Similar, but less pronounced, results were obtained when a similar narrative was described as fictional (Batson, Chang, Orr, & Rowland, 2002). Taking the perspective of an outgroup member in fiction appears to be an effective intervention for improving implicit, as well as explicit, attitudes: Todd, Bodenhausen, Richeson, and

Galinksy (2011) showed that taking the perspective of a Black character in a video clip, but not watching the same video clip with the goal of being objective, led to reduced implicit racial bias.

The results of studies discussed thus far were obtained by instructing participants to take the perspective of a character, a useful tool in determining causality. However, under real-world conditions identification with story characters occurs spontaneously, rather than being imposed upon the audience member through instructions. Johnson, Jasper, Griffin, and Huffman (2013) examined spontaneous perspective taking in reading a fictional narrative about a counter-stereotypical Arab-Muslim woman. They found that exposure to the narrative reduced prejudice toward Arab-Muslims, relative to exposure to a non-narrative description with the same counterstereotypical information. Increased empathy and perspective taking among participants who read the narrative version accounted for the reduced prejudice. Similarly, Müller (2009) found that viewing a multicultural television drama reduced viewers' perceptions of ethnic threat, and that this effect was related to identification: Identification with the outgroup characters was related to decreased perceptions of ethnic threat, whereas identification with the ingroup characters was related to increased perceptions of ethnic threat. In a related study, Igartua (2010) exposed participants to a film that promoted a favorable view of immigration and found that participants' reported experiential identification with the film characters was related to having more positive attitudes toward immigrants. The key control, however, was another group who completed attitude measures *before* watching the film: In this group, attitudes were not related to identification, suggesting that reverse causality, in which positive attitudes lead to greater identification, is not feasible.

Evidence for whether parallel effects could be obtained with children–and at what ages–is not known. Some studies have incorporated fiction into programs designed to reduce prejudice

in children, but because other activities and discussions were also included in the programs, the effects of the fiction cannot be isolated (Clunies-Ross & O'Meara, 1989; Gimmestad & De Chiara, 1982; Shochat, 2003). Similarly, some research has found that books and television shows designed specifically to reduce racial prejudice through explicit messages about tolerance and diversity can have positive effects on increasing acceptance of other racial groups (Cole et al., 2003; Houser, 1978; Mays, Henderson, Seidman, & Steiner, 1975; Wham, Barnhart, & Cook, 1996). Although these results are encouraging and suggest that it is possible for fiction to change children's racial attitudes, the results of these types of interventions are not universally positive (Persson & Musher-Eizenmann, 2003; see also Aboud et al., 2012). Further, these studies do not inform our understanding of the value of increasing minority representation in children's shows without explicit anti-bias messages. In one study to examine this question, Gorn, Goldberg, and Kanugo (1976) found that preschoolers who watched an episode of *Sesame Street* that included non-White children had more positive attitudes toward those children immediately after viewing, but they did not test whether the effect generalized to other non-White children who did not appear on the show. A similar study showed that although viewing non-White children on *Sesame Street* did lead toward more positive attitudes toward other non-White children immediately after viewing, the effect did not persist after 24 hours and did not replicate in a sample of low-income White children (Goldberg & Gorn, 1979). Thus, it is still unclear whether this kind of exposure to outgroups through fiction without explicit anti-bias messages is effective.

In sum, identifying with or taking the perspective of an outgroup character in a fictional narrative appears to be effective in improving attitudes in adults, but the evidence for this mechanism in childhood is lacking.

Summary

Identification is defined as experiencing a narrative from the perspective of a character. There is evidence that both children and adults take the perspective of characters in a narrative to some extent; identification is an intensified version of this natural tendency and itself exists on a continuum. Theoretically, if a narrative contains a character who is similar to the audience member, that individual may be more likely to identify with the character, and thus to learn from the narrative. However, empirical evidence to support each of these links–between character similarity and identification, and between identification and learning–is mixed.

Another area of research has found that it is possible to reduce bias toward outgroups through fiction. In adults, there is some evidence that fiction may reduce bias through identifying with and taking the perspective of an outgroup character. No studies could be found testing whether this mechanism is also present in childhood.

The Current Study

This study examines the effect of character race similarity on identification with story characters, learning from stories, and attitudes toward dissimilar groups. Specifically this study addresses three primary and two secondary questions:

(1) Do children identify more with own-race characters in a narrative?

(2) Do children learn more from narratives with own-race characters?

Is this effect mediated by identification?

(3) Does an other-race character in a narrative reduce White children's racial bias?

Is this effect moderated by identification?

The current study also assessed how engaged children are in the story generally (narrative transportation) and character-related attitudes (perceived similarity, wishful identification, and

liking) in order to determine whether any effects are specific to identification, or are related to engagement with the story or other character-related attitudes more broadly. Finally, children completed the Peabody Picture Vocabulary Test in order to be able to control for possible effects of verbal ability on story comprehension.

Importantly, although theoretically it is important to assess the effect of own-race vs. other-race characters for children of all races, given our limited sampling pool the majority of participants in the current study are White, non-Hispanic. Thus, our own-race/other-race manipulation was restricted to a White/Black manipulation. Non-White children who participated are included and the research questions are examined with and without their data. This study serves as a proof-of-concept; future research will investigate how the effect may differ using a sample of primarily Black or other minority children.

This study assesses two types of racial bias: social preference for one's own race and a racial bias in pain perception. Social preference assesses children's choice of White vs. Black target children as friends. Past research has shown that White children have a preference to choose other White children over Black children on friendship-choice tasks (Aboud, 1988; Kinzler, Shutts, DeJesus, & Spelke, 2009; Kircher & Furby, 1971). The current study adapts the measure used by Kinzler et al. (2009), in which children are presented with pairs of target children and asked which one they would prefer as a friend.

The racial bias in pain perception is a less well-explored phenomenon. In our past research, we found that children show a weak racial bias by age 7 and that by age 10, like adults, they show a strong and reliable racial bias, rating Black children as feeling less pain than White children (Dore, Hoffman, Lillard & Trawalter, 2014; in preparation). Thus, the age range tested here may be an important transitional period in the development of this bias. Current data has not

yet isolated a mechanism for this bias in childhood but it is possible that taking the perspective of or identifying with a Black story character may mitigate the bias. To address this question, in the current study children rated themselves and both a Black and White target child on how much pain they would feel in response to different painful events, like stubbing a toe.

Chapter 2 - Method

Participants

Participants were 73 children between the ages of 6 and 8 years (M = 7;6, range: 6-0 to 8-11, 36 girls). Children were drawn from a database of families willing to have their children participate in research. Children were primarily White and middle- to upper-middle class, reflecting the composition of local families who volunteer for research. According to parent-report data, 61 children (84%) were Caucasian. Of the remaining children, 5 were Asian (7%), 4 were Caucasian and Asian (5%), and 3 were Caucasian and Hispanic (4%).

Procedure and Materials

Children were tested individually in a quiet room with a single experimenter. Each child was randomly assigned to read a storybook, with either an own-race or other-race protagonist, describing a child going on a class field trip to a television news station. After hearing the story, children were tested for (1) their social preference and racial bias in pain perception, (2) their identification with the character, engagement in the story, and character-related attitudes, and (3) their memory for and learning from the story. Finally, the Peabody Picture Vocabulary Test – Fourth Edition was administered as a standardized measure of children's verbal ability.

Storybook reading. The storybook was designed to be similar in format to commercial children's books targeted to children between 6 and 8 years of age, and took about 12 minutes for the experimenter and the child to read together (M = 12 min 11 sec, SD = 28 sec). Character

race was not explicitly mentioned, but rather was presented by the pictures in the books. The story protagonist was gender-matched to each child. The other characters in the storybook were racially/ethnically diverse in both the same-race and other-race protagonist conditions. The story was about a child who goes on a field trip to a TV news station and learns about how television news is made. The story begins by focusing on the main character, describing his/her excitement for the field trip and preparation for school that day. During the field trip the students learn about the three main things you need for a television news story (information about an event, pictures, sound), as well as specifics like how a live truck works and the jobs of different people in the news process. The field trip begins in the newsroom and then the class follows a reporter to a house fire and watches as he reports the story. The story eventually follows the main character back home as he/she watches the news story with his/her parents that night.

Race social preference. Children's social preference was measured by adapting a procedure from Kinzler, Shutts, DeJesus, and Spelke (2009) in which children are asked to choose either an own-race or an other-race child to be their friend. Stimuli consisted of 16 children's faces used by Kinzler et al. (2009), making up eight pairs. Within each trial, one child was Black and the other child was White. For each trial, children were asked with which child they would rather be friends. Responses were scored 1 for each trial on which the child chose the White child and 0 for each trial on which they chose the Black child, for a possible range of 0 to 8, where 8 indicates choosing the White child on all trials, 0 indicates choosing the Black child on all trials and 4 indicates choosing equally between White and Black children, showing no preference for own-race friends.

Pain rating task. Children were trained to use an adapted version of the Wong–Baker FACES Pain Rating Scale (Wong & Baker, 1988) through a short story about a child

experiencing events resulting in different levels of pain; children then responded to four comprehension questions relating to their understanding of each point on the scale. After training, children first rated the amount of pain they themselves would feel in response to 10 painful events and 2 control items. Then children were told that they would be asked about all those same things that might happen to another boy/girl and should indicate how much those things might hurt him/her. They were then shown a picture of an own-gender Black or White target child, and the items were repeated in the same order, but referring to the target child. Finally, similar instructions were repeated to introduce the ratings for the second target child. The painful event items were adapted from the corresponding research with adults (Trawalter et al., 2012) and included 10 test items such as, "You burn your tongue on some really hot food" and "You bang your toe on a chair." Two control items were inserted ("You hug a teddy bear" and "You play with a puzzle") during each item set (self, Black target, and White target) to ensure that children were paying attention and responding to the items in a meaningful way. To score this task, the response chosen on the pain rating scale for each item was given a score from 0 to 3. Scores for the 10 items were summed for self, White target child, and Black target child, resulting in three scores for each child that range from 0 to 30. Thus, to determine to what extent a child exhibited a racial bias in pain perception, children's scores for the target child were predicted from target race (White/Black) controlling for each child's self rating, such that a main effect of race would indicate whether and to what extent children differentiated between the Black and White target children in pain ratings. Where a single score is reported for racial bias in pain perception, this score is calculated as sum score for the White target child minus sum score for the Black target child, such that higher scores reflect greater bias.

Identification, character-related attitudes, and narrative transportation. Children

used visual analogue scales to respond to items assessing self-report identification, other character-related attitudes, and narrative transportation. Immediately before responding to these items, children were first trained to use the scale by being to asked to indicate the color of five squares on the continuum from white to gray to black, in order to help them conceptualize the continuous and relative nature of the scale. Children used a 10 cm line with the words "Black" and "White" at the endpoints and were asked to mark what the color the squares were on the line. They were shown a black square, a white square, a gray square, a light gray square, and a dark gray square, in that order. Children who at first failed to demonstrate understanding of the task were corrected. For the test items, children made a mark on a 10 cm line with "Not at all" and "Very" as the endpoints. Responses were coded by measuring how far the child's mark is from the left ("Not at all") endpoint of the line.

Children responded to three questions assessing their experience of identification with the character: (1) Sometimes when you hear a story, you see yourself as the person in the story. In a funny sort of way, you become the other person. How much did you see yourself as the person in the story? (adapted from Jose & Brewer, 1984); (2) How much did you imagine what it would be like to be the person in the story? and (3) How much did you imagine what the person in the story was thinking and feeling? These items were summed to create an identification composite score.

Children were also asked to report several other character-related attitudes: (1) How similar do you think you are to the person in the story? (Perceived similarity); (2) How much do you want to be like the person in the story? (Wishful identification); and (3) How much do you like the person in the story? (Liking). These items are analyzed separately, as they represent distinct concepts.

To assess engagement with the narrative overall, children responded to an adapted Narrative Transportation Scale (Green & Brock, 2000) made up of nine items, three of which are reverse scored. Children were told that they would be asked to mark on the line to indicate how much they agreed with some different sentences about listening to the story earlier in the study. Items assess to what degree children were absorbed in the story (e.g., "While you were listening to the story, you could easily picture the events happening" and "You wanted to find out what happened to the person in the story"). Scores on these items were summed to create a narrative transportation score.

Memory and learning from story. Memory and learning was assessed in four ways: (1) the total number of details that children recalled during a free recall period, (2) the number of details related to unfamiliar, generalizable content that children recalled during a free recall period (3) questions about specific details from the story, and (4) questions about generalizable content from the story. During the free recall period, children were asked to recall the content of the story they heard. Free recall was coded by indicating how many of a pre-determined set of 280 possible details children freely recalled from the narrative. In addition to the total number of details recalled, the subset of details related to the content designed to be unfamiliar were noted. For example, remembering that the news van had a microwave transmitter to send the video back to the TV station would be coded as an unfamiliar detail, whereas remembering that the child had cereal for breakfast would not. The total number of details and the number of unfamiliar details are analyzed separately.

Ten questions assessed children's memory for everyday activities that occurred in the story (e.g., What did the child have for breakfast?). Responses were coded as fully correct (1), partially correct (.5), or incorrect (0), and summed to create a story detail question score.

Ten questions assessed children's learning of unfamiliar content from the story regarding TV news. The questions were designed to assess material that was expected to be unfamiliar to children of this age (e.g., How does the video get from the live truck to the TV station?). Responses were coded as fully correct (1), partially correct (.5), or incorrect (0), except for one question that asked children to identify the three main things needed for a television story and for which answers were coded 1, .66, .33, or 0, reflecting children's ability to recall 0, 1, 2, or 3 of the aspects. Responses to these ten questions were summed to create a generalizable content question score.

Receptive vocabulary. Children completed the Peabody Picture Vocabulary Test – Fourth Edition (PPVT; Dunn & Dunn, 2007) as a measure of receptive vocabulary. This measure was used as a control in the analyses to account for the effect of differences in language skills on children's comprehension of storybook material. Scaled scores are used to account for expected age differences.

Chapter 3 – Results

First I will discuss preliminary analyses, including the relationships between the story- and character-related attitude measures, the reliability of the memory measures, demographic differences between conditions, and children's performance on the visual analogue scale training. Then I will discuss the primary analyses pertaining to (1) effects of character race on identification, (2) effects of character race on learning from the story, (3) effects of identification on learning from the story, and (4) effects of character race on racial bias. Note that the majority of children in the sample were Caucasian (84%) and the remaining were Asian, or Caucasian and another ethnicity. None of the children in the sample were identified by parent-report as African-American. For clarity, the analyses below use the terms White character condition and Black

character condition. Relevant analyses were also conducted with the subsample that identified as only Caucasian; all results were similar to the results for the whole sample, thus data from the whole sample are reported here.

Preliminary Analyses

Table 2 provides descriptive statistics for the dependent variables. Table 3 provides condition differences in the dependent variables, without any controls. Table 4 provides correlations among the dependent variables.

Table 2

Descriptive Statistics for Dependent Variables

	Mean	Standard Deviation	Range	Possible Range
Identification composite	16.7	7.4	0 – 30	0 – 30
Thinking/feeling item	6.5	3.3	0 – 10	0 – 10
Imagine item	5.8	3.5	0 – 10	0 – 10
Become item	4.5	3.7	0 - 10	0 - 10
Perceived similarity	3.8	3.2	0 – 10	0 – 10
Wishful identification	4.9	3.8	0 – 10	0 – 10
Liking	7.3	2.8	0 – 10	0 – 10
Narrative transportation composite	38.9	14.2	0.1 – 60	0 - 60
Free recall total details	24.5	16.9	1 – 85	0 – 280
Free recall unfamiliar details	3.3	4.5	0 – 21	0 – 102
Familiar memory questions	6.6	1.8	1.5 – 10	0 – 10

Unfamiliar memory questions	2.9	1.8	0 – 7	0 – 10
PPVT scaled score	118.8	11.7	95 – 141	20 – 160
Social preference task	6.0	1.8	1 – 8	0 – 8
Racial bias in pain perception	0.6	3.6	-8 – 13	- 30 – 30

Table 3

Condition Differences in Dependent Variables.

	Mean, White character	Mean, Black character	*t*-value	*p*-value
Identification composite	17.8	15.7	1.2	.22
Thinking/feeling item	6.5	6.5	- 0.05	.96
Imagine item	6.0	5.5	0.6	.51
Become item	5.3	3.7	1.9	.06
Perceived similarity	4.6	2.9	2.3	.02
Wishful identification	5.4	4.5	1.0	.30
Liking	7.6	7.1	0.7	.51
Narrative transportation composite	41.7	35.9	1.7	.09
Free recall total details	27.3	21.6	1.5	.15
Free recall unfamiliar details	4.0	2.6	1.3	.19
Familiar memory questions	6.5	6.8	- 0.6	.56
Unfamiliar memory questions	2.7	3.0	- 0.7	.51

PPVT scaled score	116.1	121.7	- 2.1	.04
Social preference task	6.0	6.1	- 0.07	.95
Racial bias in pain perception	0.9	0.4	0.5	.60

Table 4

Correlation Table for Dependent Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Identification												
2. Narrative transportation	.65*											
3. Perceived similarity	.25*	.30*										
4. Wishful identification	.44*	.63*	.34*									
5. Liking	.45*	.54*	.07	.45*								
6. Free recall total details	.16	.09	-.05	-.05	.07							
7. Free recall unfamiliar details	.14	.12	.005	-.03	.02	.84*						
8. Familiar memory questions	-.13	-.27*	-.17	-.21*	-.23^{+}	.42*	.35*					
9. Unfamiliar memory questions	-.06	-.03	-.10	-.04	-.07	.48*	.43*	.56*				
10. Social preference task	.15	.06	-.03	.005	.03	-.07	-.12	-.01	-.20			

11. Racial bias in pain perception	.11	.17	.05	.34*	.07	-.10	-.17	.02	.008	.03	
12. PPVT scaled score	-.40*	-.32*	-.22^{+}	-.18^{+}	-.12	0.09	-.06	.48*	.51*	-.15	-.04

* p<.05, $^{+}$p<.10

Identification, narrative transportation, and character-related attitudes. Of primary interest were three items that assessed children's identification with the story character. The item, "*How much did you imagine what it would be like to be the girl/boy in the story?"* was related to both, "*How much did you imagine what the girl/boy in the story was thinking and feeling?" r*(71) = .42, *p* = .0002, and, "*Sometimes when you hear a story, you see yourself as the person in the story. In a funny sort of way, you become the other person. How much did you see yourself as the girl/boy in the story?*" *r*(71) = .29, *p* = .01, but the *thinking/feeling* and *become* items were not related to each other, *r*(71) = .06, *p* = .61. Because, theoretically, these items were designed to assess different aspects of identification, they were summed to create an identification composite score. However, because the items were not uniformly related to each other and the internal reliability for the three items was poor (Cronbach's alpha = .50), relevant analyses were also conducted for each item separately.

To examine gender differences, regression analyses were conducted predicting the identification composite, and then each item separately, from gender. There was a significant effect of gender on the identification composite, such that girls reported stronger identification (*M* = 19.0, *SD* = 5.6) than boys (*M* = 14.5, *SD* = 8.3), *B* = -4.2, *p* = .008, *d* = .65. When examining the individual items, girls reported that they became the character to a greater extent (*M* = 5.4, *SD* = 3.6) than did boys (*M* = 3.6, *SD* = 3.6), *B* = -1.8, *p* = .03, *d* = .50, and that they

imagined what it would be like to be the character to a greater extent ($M = 6.7$, $SD = 2.9$) than did boys ($M = 4.9$, $SD = 3.7$), $B = -1.8$, $p = .03$, $d = .55$. There was not a significant effect of gender on how much children reported imagining what the character was thinking and feeling, Girls: $M = 7.0$, $SD = 2.9$; Boys: $M = 6.0$, $SD = 3.6$; $B = -1.0$, $p = .21$, $d = .31$.

To examine other predictors of identification, regression analyses were conducted predicting the identification composite, and then each item separately, from gender, PPVT score and age, as well as the interactions between these variables. Estimates of effects were obtained from this full model and compared to simpler, nested models. The simplest model that includes all significant and trend-level predictors is described here. There was a significant effect of receptive vocabulary on identification composite, such that children with lower PPVT scores reported higher identification, controlling for gender, B = -0.22, $p = .001$, partial $R^2 = .13$. When examining the individual items, lower PPVT scores were significantly related to imagining what it would be like to the character, controlling for gender, $B = -0.09$, $p = .005$, partial $R^2 = .11$ and to imagining what the character was thinking and feeling, $B = -0.07$, $p = .03$, partial $R^2 = .07$, and were related at trend-level to becoming the character, controlling for gender, $B = -0.06$, $p = .099$, partial $R^2 = .04$. To examine whether PPVT scores were also related to the other character- and story-related attitudes, parallel models were constructed predicting these measures. PPVT scores were negatively related to narrative transportation, $B = -0.38$, $p = .008$, partial $R^2 = .10$ and were negatively related at trend level to wishful identification controlling for gender, $B = -0.07$, $p = .07$, partial $R^2 = .05$, and to perceived similarity, $B = -0.06$, $p = .0502$, partial $R^2 = .05$. A possible explanation for these unexpected findings will be considered in the discussion.

Nine items assessed children's narrative transportation. The full scale had a Cronbach's alpha of .62. Removing three items improved the alpha to .76. Removing any other items did not

further improve the alpha. Because the three items that were removed were reverse scored (e.g., "*While you were listening to the recording, you were paying attention to things in this room around you")*, it seems that some children may have interpreted the directionality of these questions incorrectly, leading to their divergence from the rest of the scale. The remaining six items were summed to create a narrative transportation score. Concerns about the validity of this and other measures are addressed in the discussion.

As expected, there were significant, positive correlations between the identification composite and all other story- and character-related attitudes: perceived similarity, $r(71) = .28, p = .02$, wishful identification, $r(71) = .43, p = .0001$, liking, $r(70) = .50, p < .0001$, and narrative transportation, $r(69) = .68, p < .0001$. When these measures were entered into a regression model simultaneously predicting identification, controlling for the previously mentioned effects of gender and receptive vocabulary, the only predictor that remained significant was narrative transportation, $B = 0.3, p < .0001$, partial $R^2 = .40$.

However, when the parallel analysis was conducted for each identification item individually, there was a unique pattern of predictors for the *become* item as compared to the other two items. Specifically, liking the character more was related to imagining what the character was thinking and feeling, controlling for PPVT score, $B = .32, p < .02$, partial $R^2 = .08$, and to imagining what it would be like to be the character, $B = .56, p < .0001$, partial $R^2 = .24$. Conversely, children said they became the character more the more they were narratively transported, $B = .19, p > .0001$, partial $R^2 = .52$, and the more similar they felt to the character, $B = .28, p = .006$, partial $R^2 = .11$, and were actually, at trend-level, less likely to say they became the character the more that they liked him/her, $B = -0.22, p = .09$, partial $R^2 = .05$.

Memory measures. To examine reliability of the memory measures, a second coder

coded 20% of the data. For each of the pre-determined possible details children could freely recall, agreement between the two coders was examined. Of the 280 details that were coded, 148 details were never coded as correct by either coder for the 15 participants recoded for reliability. Thus, these details were not included in the percentages reported here, because they would have artificially increased agreement. Across the remaining details, average agreement was 94.6%. For the memory questions, average agreement was 93.3%. Where there were disagreements, the original coder's decision was retained.

To examine gender differences in children's learning from the story, regression analyses were conducted predicting each measure of learning from gender. There was a significant effect of gender on children's memory for the story such that girls freely recalled more details from the story ($M = 28.8$, $SD = 16.2$) than did boys ($M = 20.2$, $SD = 16.6$), $B = -8.6$, $p = .03$, $d = .52$. There were no gender differences on children's freely recalled memory for unfamiliar details, on the memory questions, or on children's receptive vocabulary as measured by the PPVT, ps $> .26$),

Condition differences. Age did not differ significantly between White and Black character conditions, $p = .92$. Children's receptive vocabulary differed between conditions, such that children in the White character condition had lower PPVT scores ($M = 116$, $SD = 10.7$) than children in the Black character condition ($M = 122$, $SD = 12.1$), $t(69) = -2.1$, $p = .04$, $d = .49$. Thus, receptive vocabulary scores were controlled for in the analyses discussed below.

Visual analogue scale (VAS) training items. The majority of children, 42 out of 73 (57%), responded correctly on all five VAS training items. Of the remaining children, 21 (29%) missed one item and 10 (14%) missed two items. Because all children were corrected after missing any item, all participants were retained in the analyses. However, because missing two items may be indicative of a child's failure to understand the use of the scale, relevant analyses

were also conducted excluding these children from the sample. Results were similar except where otherwise noted.

Primary Analyses

All regression models tested for effects of and, if needed, controlled for other variables of interest, specifically age, gender, receptive vocabulary, character-related attitudes, and narrative transportation. Estimates of effects were obtained from a full model (including all factors, interactions, and covariates that might be of interest) and compared to simpler, nested models.

Effect of character race on identification. The first analysis examined whether viewing an own-race character would lead children to experience higher levels of identification. To address this question, a regression model was conducted predicting the identification composite from character race. There was not a significant effect of character race on the identification composite, controlling for gender and receptive vocabulary, White character: $M = 17.8$, $SD = 7.6$; Black character: $M = 15.7$, $SD = 7.1$; $B = .96$, $p = .55$, $d = .29$, adjusted $d = .63$[1]. When examining the identification items individually, there was a trend-level effect for children to report becoming the White character ($M = 5.3$, $SD = 3.6$) more than the Black character ($M = 3.7$, $SD = 3.7$), controlling for gender, $B = 1.6$, $p = .053$, $d = .44$, adjusted $d = 1.77$. The effect becomes significant when excluding children who failed two VAS training items, White character: $M = 5.8$, $SD = 3.4$; Black character: $M = 3.6$, $SD = 3.6$; $B = 2.1$, $p = .02$, $d = .63$, adjusted $d = .45$. Neither of the other identification items differed by character race ($ps > .47$).

Parallel analyses were conducted predicting the other story- and character-related attitudes from character race. Importantly, children reported feeling more similar to the White character ($M = 4.6$, $SD = 3.3$) than to the Black character ($M = 2.9$, $SD = 2.8$), $B = 1.7$, $p = .02$, d

[1] All adjusted Cohen's *d*s are calculated from the regression models, controlling for the variables indicated in the text.

= .56, indicating that they recognized and processed the difference between the storybooks. There were no significant differences between conditions on narrative transportation, wishful identification, or liking (*p*s > .22).

Thus far, I have reported that (a) children who saw a White character reported becoming, or seeing themselves as, the character to a greater extent than children who saw a Black character, (b) children who saw a White character reported feeling more similar to the character than children who saw a Black character, and (c) that the extent to which children felt similar to the character was related to the extent to which they reported becoming or seeing themselves as the character (reported in the preliminary results section above). These relationships satisfy the conditions for testing mediation, that is, whether children become/see themselves as the White character to a greater extent than the Black character because they feel more similar to the White character than to the Black character. Indeed, character race was no longer predictive of the become question when controlling for perceived similarity and gender, $B = 0.80$, $p = .31$, adjusted $d = .92$, whereas perceived similarity remains a significant predictor, $B = 0.49$, $p = .0002$, partial $R^2 = .20$, Sobel test $z = 2.01$, $p = .04$, see Figure 2. These data suggest that perceived similarity at least partially accounts for the effect of race on becoming/seeing oneself as the character. Importantly, reverse causality is also plausible, such that the more children become/see themselves as the character, the more they feel similar to the character. However, a test of mediation for this model was not as strong as the model with similarity as the mediator, although it was significant at trend-level, Sobel test $z = 1.7$, $p = .09$.

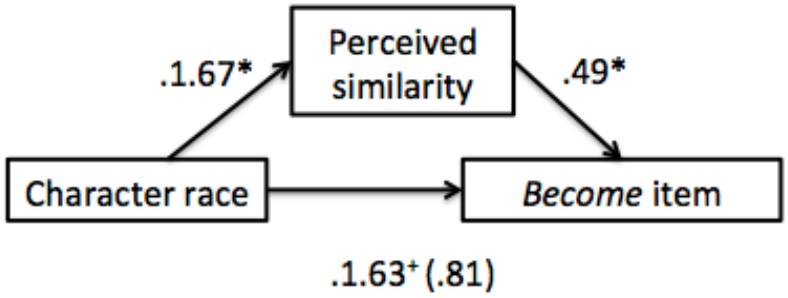

Figure 2. Model showing mediation of perceived similarity between character race and *become* item.

Note: Coefficients are unstandardized beta coefficients. * $p < .05$. $^{+}$ $p < .10$

Effect of character race on learning. The second question addressed whether viewing an own-race character would lead to better learning of the story content and whether this effect would be mediated by identification. To address the first part of this question, separate regressions were conducted predicting each measure of learning (free recall for total details, free recall for unfamiliar details, story-related or familiar content questions, and unfamiliar content questions) from character race. These models always retained age, PPVT score, and gender to control for the effects of these variables on learning. The relation between identification and learning is addressed in the next section.

There was a trend-level effect of character race on free recall for total details, such that children freely recalled more details from a story with a White character ($M = 27.3$, $SD = 17.1$) than a Black character ($M = 21.6$, $SD = 16.4$), controlling for age, gender and PPVT score, $B = 6.1$, $p = .07$, $d = .34$, adjusted $d = .58$. The effect was stronger when excluding one outlier in the Black character condition (more than three standard deviations above the mean on free recall total details): White character: $M = 27.3$, $SD = 17.1$; Black character: $M = 19.7$, $SD = 12.5$; $B =$

8.4, $p = .005$, $d = .51$, adjusted $d = .006$, see Figure 3.

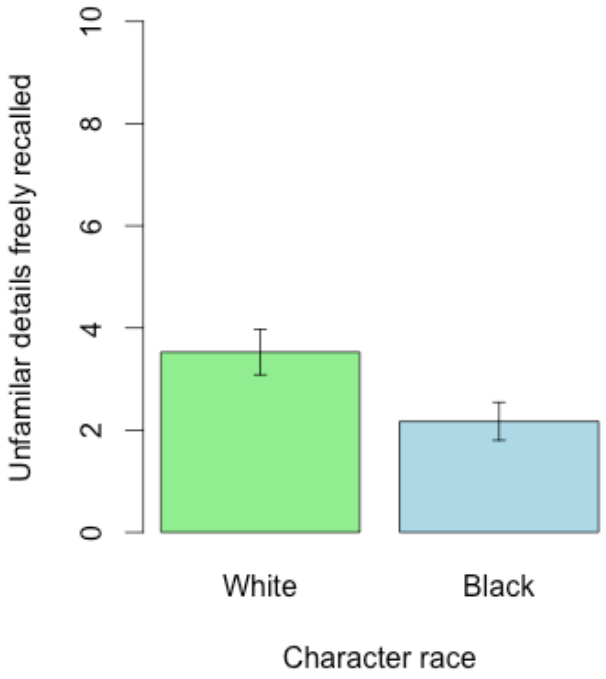

Figure 3. Effect of character race on freely recalled details.

Note: One outlier in the Black character condition is excluded.

A subset of the total possible details was identified: those details that were designed to be unfamiliar to children and focused on the new information presented in the story. When predicting free recall for this subset (unfamiliar details), there was a significant interaction between character race and gender such that girls freely recalled more unfamiliar details from the White character story ($M = 5.6$, $SD = 6.0$) than from the Black character story ($M = 2.3$, $SD = 3.1$), whereas boys freely recalled a similar number of unfamiliar details from the White character story ($M = 2.5$, $SD = 2.5$) and from the Black character story ($M = 2.9$, $SD = 5.0$), controlling for age and PPVT score, interaction $B = -4.08$, $p = .03$. However, when excluding two outliers (one in each condition that were more than three standard deviations above the mean on free recall unfamiliar details), the gender by character race interaction is no longer significant,

and there is a significant main effect of character race such that children recall more unfamiliar details in the White character condition (M = 3.5, SD = 3.8), than in the Black character condition (M = 2.2, SD = 3.2), controlling for age, gender and PPVT score, B = 1.6, p = .047, d = .37, adjusted d = .10, see Figure 4.

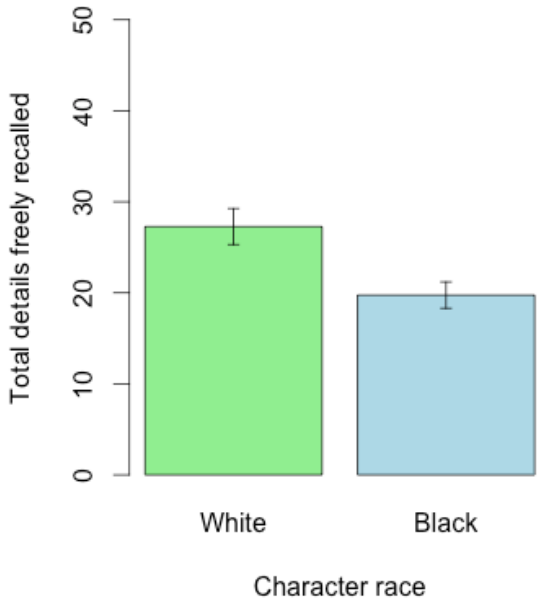

Figure 4. Effect of character race on unfamiliar details freely recalled, excluding outliers.

There was no effect of character race on how many memory questions children answered correctly, neither for familiar story-related information nor for information about TV news that was designed to be unfamiliar, controlling for age, gender, and PPVT score, ps > .57.

Given the divergent results for the two types of learning measures, it may be useful to examine the relationship between performance on the memory questions and the free recall test. If both memory question performance and free recall performance are measures of learning, we would expect them to be highly related to each other. Indeed, overall, there is a significant correlation between memory questions and free recall, $r(71) = .51$, $p < .0001$. However, this relationship is stronger in the White condition, $r(35) = .70$, $p < .0001$, than in the Black condition $r(34) = .42$, $p = .01$, interaction $B = 2.4$, $p = .03$.

Effects of identification on learning. To address whether any effect of character race on learning was mediated by identification, the identification composite was added as a predictor to each regression model to examine whether this addition influenced the effect of character race. Narrative transportation and character-related attitudes were also included in the models in order to isolate any effects specific to identification.

There was no effect of identification on free recall total details, controlling for age, gender, PPVT score, and character race, $B = .32$ $p = .21$, partial $R^2 = .03$. There were also no effects of narrative transportation or character-related attitudes on free recall total details, ps $> .37$. Similarly, there was no effect of identification on free recall for unfamiliar details, controlling for age, gender, PPVT score, character race, and the significant interaction between gender and character race, $B = 0.08$, $p = .26$, partial $R^2 = .03$. There were also no effects of narrative transportation or character-related attitudes on free recall for unfamiliar details, ps $> .32$. When excluding two outliers (one in each condition that were more than three standard deviations above the mean on free recall unfamiliar details), there was a trend-level effect of identification such that the more children identify with the character, the more unfamiliar details they recall, controlling for age, gender, PPVT score and character race, $B = .10$, $p = .09$, partial $R^2 = .03$. However, this effect appears to be driven by overall engagement with the story rather than with identification specifically, because when narrative transportation was included in the model, identification was no longer a significant predictor, and when the identification variable was removed narrative transportation was a significant predictor, controlling for age, gender, PPVT score, and character race, $B = .06$, $p = .04$, partial $R^2 = .03$. Neither identification nor narrative transportation meets the conditions for mediation between character race and learning because neither was significantly predicted by character race.

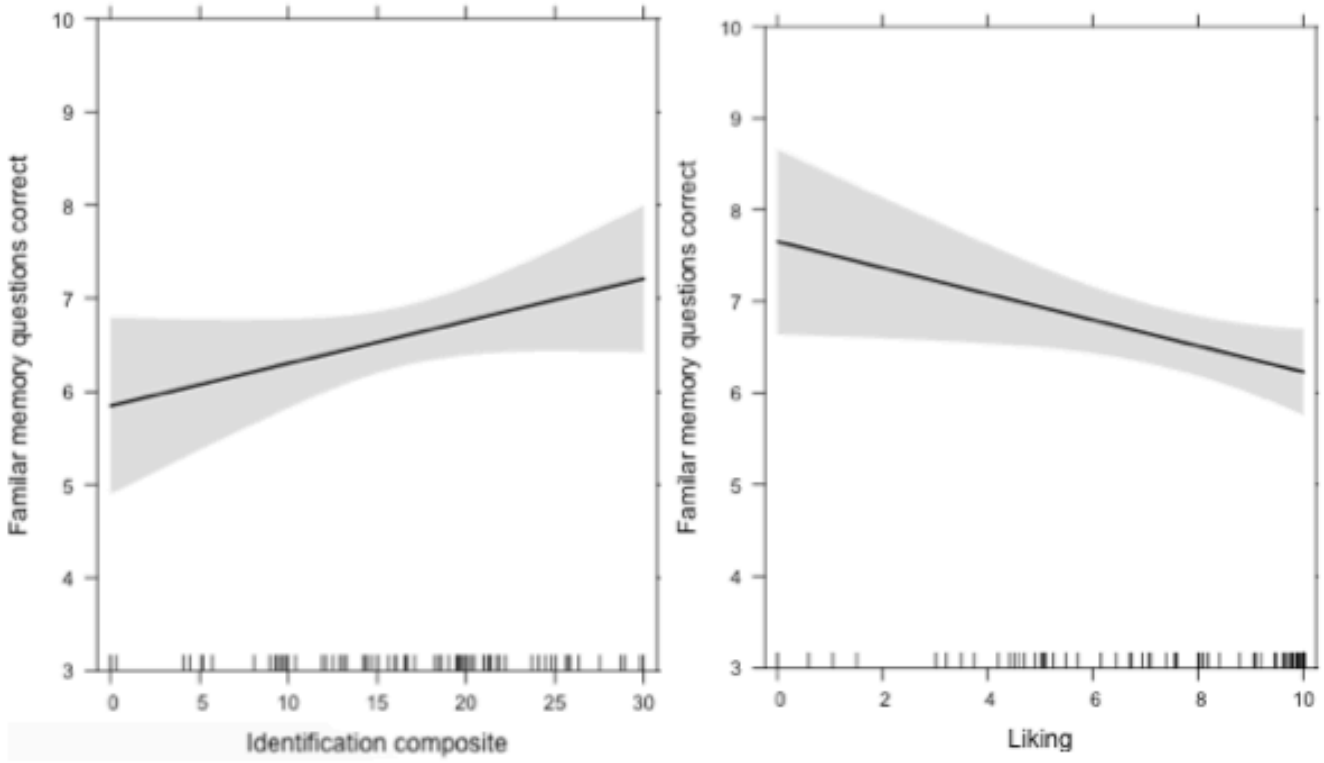

Figure 5. Effect of identification and liking on familiar memory question performance.

Although character race was not predictive of children's performance on the memory questions, it may still be instructive to examine whether any of the character- and story-related factors are related to these variables. In a model predicting familiar memory question performance, controlling for age and PPVT score, there was a trend-level effect of identification such that the more children identified with the character, the more questions they answered correctly, $B = .05$, $p = .095$, partial $R^2 = .02$, and a significant effect of liking such that the more children liked the character, the fewer questions they answered correctly, $B = -0.14$, $p = .03$, partial $R^2 = .05$, see Figure 5. When examining the individual identifications questions separately, the effect of identification holds for the *imagine* item, $B = 0.13$, $p = .02$, partial $R^2 = .01$, but not for the *thinking/feeling* item or the *become* item, ps $> .30$. There were no effects of narrative transportation or other character-related attitudes on familiar memory question

performance, *p*s > .10.

In a model predicting unfamiliar memory question performance, controlling for age and PPVT score, there was a significant effect of identification such that higher identification with the character was related to answering more questions correctly, $B = .05$, $p = .03$, partial $R^2 = .003$. However, this effect appears to be driven by overall engagement with the story rather than with identification specifically, because when narrative transportation was included in the model, identification was no longer a significant predictor, and when the identification variable was removed, narrative transportation was a significant predictor, such that being more transported into the story was related to answering more questions correctly, $B = .02$, $p = .04$, partial $R^2 = .003$, see Figure 6.

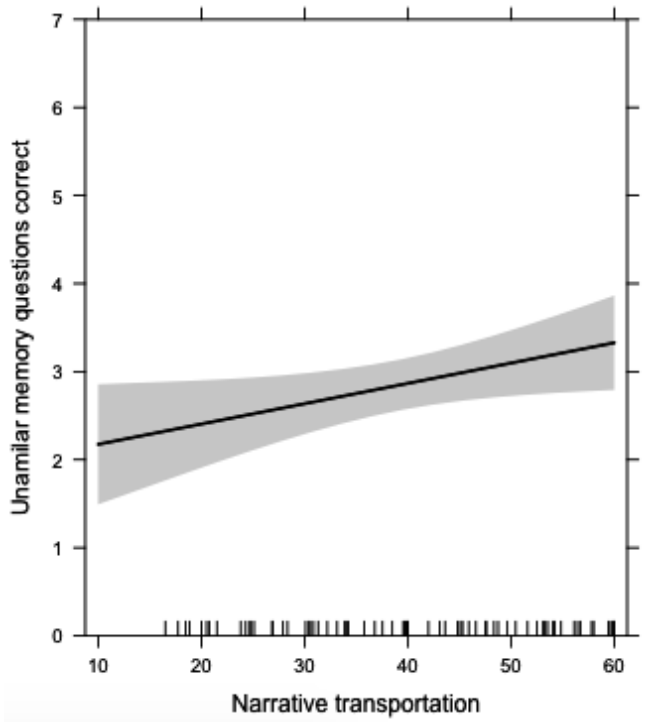

Figure 6. Effect of narrative transportation on unfamiliar memory question performance.

Racial bias. The third question in this study addressed whether viewing an other-race character reduces own-race bias and whether this effect is moderated by identification. Two

kinds of racial biases were tested here, social preference and racial bias in pain perception. Replicating past research, these biases were unrelated, $r(68) = .02$, $p = .84$. Thus, the effects of character race are addressed separately for the two measures.

First, a regression model was conducted predicting social preference from character race. Then, the role of identification was examined by adding the identification composite and the interaction between character race and identification as predictors in the regression model. There was not a significant effect of character race on children's social preference for White over Black friends, $B = -0.03$, $p = .95$, $d = .02$ or interactions between character race and identification, narrative transportation, or character-related attitudes, ps $> .21$. Replicating past findings, overall, children showed an own-race social preference, choosing the White child over the Black child to be friends with more often than would be expected by chance, $t(71) = 4.9$, $p < .0001$.

To test whether viewing a Black story character reduced racial bias in pain perception, a mixed-effects regression model was conducted predicting pain rating from self-pain rating, target race, character race, and the interaction between target race and character race, as well as the random effect of subject to account for target race as a repeated measures variable. Then, identification was tested as a moderator of this effect by adding the identification composite and the three-way interaction between target race, character race, and identification as predictors to the regression model. There was not a significant interaction between target race and character race on racial bias in pain perception, $B = .43$, $p = .62$, or a significant interaction between character race, target race, and identification, $B = -0.12$, $p = .33$. There were also no significant interactions between character race, target race, and narrative transportation or character-related attitudes, ps $> .41$.

Chapter 4 - Discussion

This study aimed to address three primary and two secondary questions:

(1) Do children identify more with own-race characters in a narrative?

(2) Do children learn more from narratives with own-race characters?

Is this effect mediated by identification?

(3) Does an other-race character in a narrative reduce White children's racial bias?

Is this effect moderated by identification?

First, I will discuss a possible concern about the validity of the measures and preliminary findings related to identification broadly, and then I will discuss findings relating to each of these aims.

Validity of Measures

In order to be able to draw conclusions from this data, especially null results related to identification, it is important to be confident that the measure of identification and other story- and character-related attitudes are valid. There are two related concerns one might have in this regard. First, children may have failed to understand the questions themselves, and thus were unable to provide meaningful responses. Second, children may have failed to understand how to use the visual analogue scale (VAS) to appropriately respond to the questions.

These possibilities seem unlikely for two main reasons. First, there were significant gender effects such that girls reported identifying with the character more than did boys. In addition to being in line with some previous research on gender differences in empathy (discussed below), the fact that this gender difference arose only for identification and not for other story- and character-related attitudes suggests that children were meaningfully differentiating the identification questions from other questions assessing positive feelings

towards the character and the story. Second, children used the VAS to report feeling more similar to the White character than the Black character. This was one of only two items on which responses differed by character race, suggesting that it reflects a relatively specific response, not a more general positivity towards the White character. Indeed, the fact that children think a character of their own race is more similar to them is sensible, and the finding that children could effectively use the VAS to report this perception suggests that they understood how to use the scale. Beyond these two primary pieces of evidence, there are other significant predictive relationships among the story- and character-related measures and between these measures and children's learning, discussed below, which also point towards the self-report data being meaningful.

Of course, even given these assertions, one cannot be certain that these items measure what they intend to measure. Future research should continue to explore the measurement of these variables, perhaps by examining whether they would be affected by manipulations of identification that have been effective with adults (e.g., emotional content and perspective taking information; Tukachinksy, 2014), whether they are related to other outcomes of interest like trait adoption (Galinsky, Wang & Ku, 2008), and whether there are more objective measures of identification that could provide convergent validity (e.g.. differences in speed of processing consistent and inconsistent information; Fecica & O'Neill, 2010).

Next, I will discuss preliminary findings relating to identification, including the distinction between the three items, the mediating relationship of perceived similarity in the effect of race on seeing oneself as the character, gender differences in identification, and the relationship between receptive vocabulary and identification.

Identification

Because the three identification items were designed to assess different aspects of identification, it is not altogether surprising that two items (*thinking/feeling* and *become*) were unrelated, whereas both were related to the *imagine* item. Becoming or seeing yourself as the character seems to reflect the strongest form of experiential identification: losing oneself while taking on the role of a character (Cohen, 2001). In contrast, imagining what a character is thinking and feeling may reflect either the simulation functions involved in identification, or an empathic response more broadly. Thus, children who were experiencing lower levels of perspective-taking or other forms of character involvement may have reported that they imagined what the character was thinking and feeling to a great extent, but not endorsed as highly that they became or saw themselves as the character. This conjecture is supported by the pattern of means among the items: Children mostly strongly endorsed that they were imagining what the character was thinking and feeling and were least likely to report that they became the character. The unique predictors of each item are also supportive of this distinction. Narrative transportation and feeling similar to the character were related to the become item, suggesting that deep involvement and perceived similarity may facilitate becoming the character. Conversely, the thinking/feeling item was predicted by liking, indicating that perhaps imagining what the character is thinking and feeling represents an empathic response that is facilitated by parasocial interaction with the character rather than with identification specifically. The third identification item, imagining what it would be like to be the character, was related to both of the other items and might represent an intermediate step, involving more perspective taking than imagining the character's thoughts and feelings but not requiring the loss of self that is implied in becoming the character.

Of note is the finding that perceived similarity mediated the relationship between character race and becoming or seeing oneself as the character. This finding supports the idea that children reported becoming the White character to a greater extent than the Black character because of the character's similarity to themselves in race, and is in line with Cohen's (2001) proposal that feeling similar to a character promotes identification. Of course, correlational findings preclude strong conclusions about causality. Thus, it is possible that becoming the character led children to feel more similar to the character, rather than the other way around. This type of effect might reflect a self-other merging in which as one identifies with a character, the character is seen as more self-like (Cohen & Weimann-Saks, 2012; Galinsky, Wang, & Ku, 2008). In the future, it will be important to design studies that can begin to tease apart these causal relationships, perhaps by measuring similarity both before and after narrative exposure, or by using manipulations of identification that should not be directly related to similarity.

There was also a significant gender effect such that girls reported identifying with the character to a greater extent than did boys. This finding is consistent with other research finding that females generally score higher on empathy measures than do males, at least when those measures use self-report (Eisenberg & Lennon, 1983). Further, Davis (1980) found that this gender difference was strongest on a subscale assessing "fantasy empathy," which measures the tendency to empathize with characters in fiction. Scant data are available to examine gender differences in childhood empathy or identification, but it would not be surprising to find that an adult gender difference has its origins in childhood.

One might be concerned that, although the story character was gender-matched to the child and the story was carefully designed to be gender-neutral, subtle differences in the illustration of the male and female character drove this gender finding. However, this

explanation seems unlikely given that there were no gender differences on overall engagement in the story, character liking, wishful identification, or perceived similarity, suggesting that any differences between how boys and girls perceived the story or story character was specific to identification, not to overall interest in the story or positive feelings towards the character. One other possible explanation for the gender difference in identification is related to the experimental situation. Specifically, the experimenter running the procedure was always female. Thus, although the illustration of the character in the storybook was gender-matched, the first-person narration was always read aloud by a female adult. Girls may have identified more with the character because their experience of the story was consistently feminine (female character with female voice) whereas boys' experience was less consistently masculine (male character with female voice). Using a male experimenter in future research will be important to eliminate this confound.

Finally, there was an unexpected relationship between receptive vocabulary and identification such that children with lower PPVT scores reported more identification. One possible explanation for this finding relates to children's focus on the story's text. The story was presented with the text in a large font on the left-hand page and the related image on the right-hand page. The experimental setting was designed such that the experimenter always sat on the left of the child with the text directly in front of her and the image centered in front of the child. Despite this arrangement, many children appeared to be glancing at the image on each page and then primarily focusing on the text page and following along as the experimenter read the story. There is evidence that children with better receptive vocabularies also have more advanced reading skills (Dunn & Dunn, 2007; Sénéchal, Oullette, & Rodney, 2006) and thus children with higher PPVT scores might have been more likely to attempt to read along during the story or to

focus on the text rather than the image. For early readers, this focus on the mechanics of the text may have disrupted their engagement with the narrative, and thus their identification with the story character. This idea is consistent with the finding that receptive vocabulary was also negatively related to narrative transportation and other character-related attitudes. Regardless, receptive vocabulary was used as a control in the analyses addressing the primary research questions, which are discussed next.

Similarity and Identification

The first primary issue this study aimed to address was a common suggestion in the literature that people should identify more with characters that are similar to them. In the present study, children's scores on the identification composite did not significantly differ by character race, despite the fact that children did perceive the White character as more similar to them than the Black character. As discussed in the introduction, although this idea is prevalent, empirical data supporting the connection between similarity and identification is lacking, and many of the studies that do exist have methodological issues that limit the conclusions we can draw from them. Thus, although it is important to exercise caution in interpreting null results, such findings in this domain may be informative if the measures are valid.

However, given that the three items designed to assess identification were not uniformly related and exhibited divergent relationships with other variables of interest, the composite score may not be the most meaningful measurement of identification. Indeed, although using the composite score results in a null finding, there is some evidence that race did have an effect on identification. Specifically, children reported becoming the character, or seeing themselves as the character, to a greater extent when they saw a White character as compared to a Black character. As discussed above, the conceptualization of identification reflected in the *become* question may

represent the construct of experiential identification most distinctively, whereas the other items included in the composite score may actually be more reflective of other types of responses to the character. Indeed, there was no effect of character race on the other character-related variables assessed here, such as liking the character and wanting to be like the character, or on being transported into the narrative, suggesting that the effect is specific to becoming or seeing oneself as the character. Thus, these results may indicate that children feel similar levels of positivity and engagement towards a Black and White character, and even imagine the character's thoughts and feelings and what it would be like to be the character regardless of race, but that a strong form of experiential identification is limited to characters who are seen as more similar to oneself, specifically in this case, an own-race character. This interpretation is further supported by the finding that perceived similarity is related to becoming the character, whereas liking the character is predictive of the other identification items.

This finding is also in line with some research with adults. Specifically, Kaufman and Libby (2012) found that White participants identified less with a character who was exposed as Black at the beginning of a written narrative. To my knowledge, the current study is the first to directly assess the effect of race on experiential identification in childhood. The finding that, at least on one measure, children reported more experiential identification with an own-race character compared to an other-race character extends a long-standing idea in the literature that similarity is related to identification. Indeed, past research has suggested that experiential identification is influenced by gender-similarity (Maccoby & Wilson, 1957), mood similarity (Bower, 1978), and physical similarity (Fischer Kastenmuller, & Grietmeyer, 2010; Williams, 2011). A more recent meta-analysis however, suggested that manipulating objective similarity, through race, gender, physical appearance, or situation, was not consistently related to

experiential identification (Tukachinksy, 2014). The conflicting findings in this domain indicate that there may be certain boundary conditions on which types of similarities are related to identification, and in what contexts.

Importantly, the current study avoided several confounds that have been problematic in past research. Because other character- and story-related attitudes were measured and controlled for, we can be more confident in concluding that the effect of character race on becoming or seeing oneself as the character is not due to liking the character, wanting to be like the character, or being more narratively transported. Furthermore, because the stories were identical except for character race we can ensure that race and not other related variables are causing differences. Importantly, because this sample was limited to primarily White participants, results may not be generalizable to Black children or other minority samples. This issue will be discussed in the Limitations section below. Next, I will turn to results relating to children's learning from the narrative.

Learning

In addition to assessing the effect of character race on identification, this study was designed to examine the effect of both character race and identification on children's learning. The findings provide divergent answers for different types of learning measures. For measures assessing how much children freely recalled when asked to describe everything they could remember from the story, character race appeared to be an important factor, with children freely recalling more details from a story with a White character than from one with a Black character. This finding alone would suggest that character race influences children's learning from narratives. However, on measures in which children were asked specific questions about the story, accuracy did not differ between the Black and White character conditions. In tandem,

these results might indicate that although children do not learn more stories with a same-race character, they prefer to talk more about a story with a White character than a story with a Black character.

Furthermore, although children freely recalled more details from the story with the White character, this effect could not be attributed to identification. Indeed, although children freely recalled more details the more that they were transported into the narrative, this effect was independent of character race. Thus, it seems that some other factor not measured here accounts for children's tendency to recall more details in the White character condition.

One possible explanation for these differing findings is that these measures may reveal children's memory for different types of information. Specifically, the memory questions may assess children's learning for the most central information from the narrative, whereas children's performance on free recall may reflect their tendency to remember more peripheral details of the story. Indeed, there were many more pieces of information children could freely recall (280 possible details in the coding scheme used here) than pieces of information that children were asked about specifically in the 20 memory questions. Thus it is not necessarily the case that, in the Black condition, children failed to report details in the free recall period that they later showed their knowledge of when prompted in the memory questions. For example, children in the White condition may have been more likely to mention the presence of the TV station van during the free recall period than children in the Black condition, but because this detail was not an answer to a specific memory question, this difference would not have translated to the memory question measure. To examine whether different types of information drove the difference between free recall and memory question performance, free recall details were further broken down into information that was and was not included in the memory questions, and the

analyses were conducted separately. These analyses showed that character race was a significant predictor of children's free recall for both details that were and were not later asked about in memory questions, indicating that the difference between conditions in free recall was not due to a specific type of information that was not covered in the memory questions. Importantly, then, it seems that children's tendency to freely recall fewer details in the Black condition than in the White condition was related specifically to children's ability or tendency to freely recall information, and not to whether children encoded the information during the storybook reading, as children appear to have learned equally from both narratives when their knowledge was probed via specific questions.

Another finding that may be useful in conceptualizing this issue is the stronger relationship between free recall performance and memory question performance in the White condition than in the Black condition. One explanation for this divergence is that after hearing a story about a White character children were highly motivated to report everything they could remember in the free recall period, whereas after hearing a story about a Black character children did not put their full effort into the free recall report, leading to a weaker relationship between memory question performance and freely recalled details. Perhaps when children were asked about the story in an open-ended way during the free recall period, those who saw the story with the White character thought of the story as more relevant to their own lives, and thus tried harder to recall details about it. One implication of this view is that in real-world situations, children who hear a story about an other-race character might be less likely to want to discuss it with others or seek out information about the topic afterwards.

Another possibility is that children's tendency to freely recall more story details in the White character condition than in the Black character condition was due to a feature of the

experimental situation, namely that all experimenters were White. Thus, children may have thought that the experimenter would be less interested in hearing about the story with a Black character than about the story with a White character. However, this explanation seems unlikely, as the same experimenter had read the story with the child earlier in the procedure and used the same prompts to encourage free recall in both conditions.

Setting aside the effect of character race on free recall performance, it is important to consider the finding that character race was not related to children's learning as reflected by answers to the memory questions. However, in order to conclude from this data that children do not learn more from an own-race character than an other-race character, it is necessary to examine whether the memory questions are a valid and sensitive measurement of children's learning from the story. Indeed, the story content was designed to be unfamiliar to children of these ages, but the questions were not tested with children who had not been exposed to the storybook. If children's responses to the questions were based on knowledge from prior to the study, a null result between conditions would not be surprising.

However, there is reason to doubt this possibility. First, a subset of questions were related to generalizable content about the TV news, but the familiar content questions tested children's memory for story-specific events and details, like what the child had for breakfast and how the house fire started. Thus, children could not have answered these questions correctly using prior knowledge. But of course the educational value of stories resides in their ability to teach children generalizable information, like the questions in the unfamiliar content category. Although children could have conceivably had some knowledge relevant to these questions prior to exposure to the story, it seems unlikely that the coding of their answers reflects only prior knowledge. Specifically, examination of the open-ended responses reveals many story-specific

answers to the questions. For example, in response to the question asking how the video gets from the live truck to the TV station, correct responses included, “There’s a microwave inside the truck. Not the ones you eat toast with,” in reference to the photographer in the story explaining how the microwave transmitter is different from a microwave oven; and, “By this special square like thing, kinda like a pirate’s telescope that comes out from the roof of the car,” referring to the way the microwave transmitter is described as rising from the van in the story. Furthermore, at least one question in this category was quite specific to the story: “What are the three things you need for a TV news story?” Although this content is generalizable beyond the story, it is unlikely that children heard this precise formularization of this idea elsewhere. Finally, for 5 of the 10 unfamiliar content questions, children could receive a partially correct score (.5) for a response that was correct but may not have fully indicated that children learned the information from the story. For example, on a question assessing what a photographer does, “takes pictures,” would be coded as partially correct whereas “shoots video” or “takes pictures of the events happening that are on the news’ would be coded as fully correct. However, when these partially correct responses were recoded as incorrect, there was still no effect of character race.

A related possibility is that the memory questions were a valid measure of learning, but were not sensitive enough to detect an effect of race if one were present. However, there were significant effects of identification and narrative transportation on memory question performance, so this possibility also seems unlikely. Furthermore, a supplementary analysis grouped the questions by difficulty and found no effect of character race even on the subset of questions that had the most variability.

Of course, as stated above, null results must be interpreted with caution. However, if taken at face value, this finding may suggest that children can learn equally well from stories

with own- and other-race characters. It will be important for future research to replicate this finding using other paradigms and to examine whether findings would be similar in a sample of primarily Black children. However, if results looked similar with a Black sample, it might indicate that Black children are not at a significant disadvantage in learning from storybooks and other media with White protagonists. For White children like those in our sample, that learning from a story is not affected by character race would indicate that if there may be other advantages beyond those examined here to including more diverse protagonists in children's books, such a shift should not affect children's learning from the materials.

As mentioned above, although character race did not affect children's performance on the memory questions (assessing learning), there were significant effects of character- and story-related attitudes on these variables, in line with other research suggesting that greater identification leads to more learning (Calvert, Strouse, & Murray, 2006; McArthur & Eisen, 1976). However, the effect of identification in this data was specifically related to the familiar content questions, like what the child ate for breakfast, whereas children's learning of the unfamiliar content related to TV news production was not related to identification, at least not when controlling for children's overall transportation into the story. This distinction suggests that identifying with a character might promote memory for story events, whereas learning of novel, generalizable content is facilitated by engagement with the story more broadly.

There was also an unexpected negative effect of liking the character on memory for the familiar content questions, controlling for identification. Although this finding may be counterintuitive, it does provide important evidence that the beneficial effect of identification on learning does not appear to be driven by positive feelings towards the character. Indeed, at similar levels of identification, other positive feelings towards the character may actually impede

learning, perhaps because liking the character is related to focusing more on the character rather than on the story content.

Overall, the learning findings suggested that whereas character race seems to influence children's tendency to freely recall information from a story, children do not learn more from a story with an own-race character than one with an other-race character, at least when this learning is probed via specific questions. However, attitudes towards the character and story did influence learning, such that children remembered more about general story events the more that they identified with the character and the less that they liked the character, and remembered more about the generalizable content the more that they were transported into the narrative. Next, I will discuss the findings regarding children's racial bias.

Racial Bias

The current study found no effect of viewing a story with a Black character on White children's racial bias, either in a social preference task or a task assessing racial bias in pain perception. This finding is in contrast to research showing that exposure to outgroups in fictional narratives can reduce bias in adulthood. Besides participant age, another distinction between these adult studies and the current study is that the narratives in the previous studies often contained counter-stereotypical presentations of minority group members and focused more on the character and his/her thoughts and feelings than did the storybook in the current study. Although the storybook used here was written from the perspective of the main character and contained references to the character's thoughts and feelings, the storyline primarily focused on the day's events, in which the character was primarily a passive observer. Results may have differed if the character was presented as counteracting stereotypes (Johnson, Jasper, Griffin, and Huffman, 2013), or experiencing discrimination (Todd, Bodenhausen, Richeson, and Galinsky,

2011), or if the character's thoughts and feelings were the focus of the storyline (Batson, Chang, Orr, & Rowland; Schiappa, Gregg, & Hewes, 2005). Future research should examine both whether a story with these characteristics would reduce bias in childhood, and whether a story without these characteristics would reduce adults' bias.

It is also interesting to note the lack of any interactions with identification or other story- and character-related attitudes on children's racial bias. Findings with adults convey the importance of perspective taking in the effects of fiction on outgroup biases. Thus, one might expect that even with no main effect of exposure to a Black storybook character on children's racial attitudes, there might be an effect among children who reported strong identification with the Black character. That no such effect was present might be further support for the inadequacy of the story content for bias reduction, at least through a perspective taking mechanism.

Limitations

Although the current study provides an important initial exploration, there are several limitations. First, this sample was limited to primarily White participants, and results indicating that children may identify less with an other-race character may not be generalizable to Black children. White children are likely to be less familiar with seeing Black protagonists in stories (Pescosolido, Grauerholz, and Milkie, 1997), so it is possible that it was the unconventionality of the experience that disrupted their identification rather than character race specifically. If the proportion of Black protagonists in children's books was increased, or if a sample of children was repeatedly read stories with Black protagonists over time, this effect may be reduced. Along these lines, Black children may be less likely to show an effect of race on identification, perhaps due to greater experience with stories with White characters.

Relatedly, because this sample was limited to White participants, one might argue that the effect could be status-based rather than being based on racial similarity. That is, White children may be less likely to identify with a Black character not because the character is different from them, but because the Black character is perceived as being of lower status. We have found that White children as young as 5 have race-based expectations about individuals' wealth and hardship (Dore, Hoffman, Lillard, & Trawalter, unpublished data). If status instead of similarity were driving this effect, one might expect that Black children would actually show a similar pattern, being more likely to identify with a White character than a Black character. However, two pieces of data run counter to this possibility. First, the finding that perceived similarity mediates the relationship between character race and becoming or seeing oneself as the character supports the racial similarity mechanism. However, the study did not include a measure to assess status perceptions, so it possible that status would also be a mediator of this effect. A second finding against a status-based mechanism is that if status were a driving factor, one would expect children to want to be like a high-status character more than a low-status character, but in fact, children's wishful identification did not differ by character race.

An important limitation in relation to the lack of an effect of storybook exposure on children's racial bias is that the current study assessed the effect of one-time exposure. It is possible that although there may not be an immediate effect of exposure to a Black character in a storybook on children's racial bias, such an effect would emerge if such stories were presented to children repeatedly over time. Indeed, even studies that used stories with plots focusing on ingroup-outgroup friendships have reported effects of repeated, not one-time, storybook exposure on children's attitudes (Cameron & Rutland, 2006; Cameron et al., 2006).

Relatedly, the bias measures used here represent only two of many different kinds of racial attitudes. Specifically, the social preference task intends to assess children's preference for White over Black children as friends, but this type of measure has some detractors in the literature. For example, Nesdale (2001) argues that the artificial nature of this type of task superficially increases the salience of skin color because all other social cues are absent. He also notes that this task gives children a forced choice response with only two options and it is not clear whether these sorts of social preference measures should be interpreted as prejudice towards outgroup members or as more benign ingroup preferences. Other measures, such as those asking children to attribute both positive and negative traits to individuals of their own and another racial group, might lead to different results (Doyle & Aboud, 1995; Williams, Best & Boswell, 1975).

Similarly, the racial bias in pain perception can be seen as a specific type of racial stereotype, but it has only been recently examined in childhood and its underlying mechanism is unknown. Furthermore, this bias was chosen because past research has suggested that the age range tested here may be a particularly important transitionary period for its development, but stereotypes that are fully established by this age may be more affected by exposure to a Black story character. For example, by the age of six, children demonstrate awareness of both positive and negative stereotypes about racial groups, like Blacks being musically talented or being aggressive (Pauker, Ambady, & Apfelbaum, 2010). Exposure to the non-stereotyped Black character in the storybook may have influenced children's tendency to apply these stereotypes to the racial group more broadly.

Summary and Implications

Overall, these findings suggest that (1) White children may be more likely to identify with own-race characters than with other-race characters, (2) White children do not appear to learn more from stories with own-race characters than those with other-race characters when learning is assessed via specific questions, but do freely recall more information from stories with own-race characters more than those with other-race characters, and (3) One-time exposure to a storybook with a main character who is Black does not reduce White children's racial bias.

Together, one might conclude from the findings reported here that there is little benefit to including more diverse characters in children's books. Indeed, these results tentatively suggest that character race does not affect children's learning, and that exposure to a Black character does not reduce White children's racial bias. However, there may be other important benefits, not measured here, to increasing the representation of Black and other minority characters in children's books and media. Research suggests that Black children actually show many of the same pro-White preferences and biases as White children (Clark & Clark, 1947; Goodman, 1946; William, Best, Boswell, Mattson, & Graves, 1975; Williams, Best, & Boswell, 1975), arguably due to social status differences and societal values. However, these outgroup preferences for Black children may be more tenuous than White children's ingroup biases and may be more likely to be affected by exposure to positively valenced Black characters in books and media. Additionally, by first grade, Black children demonstrate awareness of racial stereotypes about particular occupations (Bigler, Averhart, & Liben, 2003) and exposure to Black characters in different high-status occupations might affect Black children's racial stereotypes or aspirations for their own future occupations.

The current study also sheds light on the role of identification and narrative transportation on children's learning from a narrative and suggests that although the constructs are related, they are predictive of different types of learning. Specifically, identification may be primarily important for remembering specific story events whereas narrative transportation may be more central for learning novel, generalizable content. These findings have implications for children's educational media, and future research should examine the best ways to promote both identification and narrative transportation in order to encourage different types of learning. In sum, the current study advanced our understanding of children's identification with fictional characters and the influences fiction may have on children's learning and attitudes. Given the exploratory nature of this study, future research should replicate these findings and pursue related questions left open by this data.

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Appendix A: Text of the Storybook

Note: Each number represents a new page. Descriptions of the illustrations are in parentheses.

1. I was so excited as I got ready for school that day. My 4th grade class was going to go on a field trip to the television station to see how the news is made. *(Smiling child tying shoes while leaning against bed in bedroom.)*

2. The early-morning news was on the TV in the kitchen when I went downstairs. "You need to eat your cereal," my mom told me, "You have a big day today!" I quickly gulped down some breakfast, but I didn't want to be late for the field trip. *(Child coming down the stairs and peering into the living room on the left where you can see the television has a news station on. Mother is leaning out of the kitchen on the right holding a bowl of cereal.)*

3. When my dad dropped me off at school, the big yellow school bus was already there waiting. I said goodbye to my dad and joined my friends who already had seats on the bus. *(Dad waving as child climbs onto the bus to join two friends.)*

4. When we got to the TV station, our teacher Mrs. Underwood told us that we had to be very quiet while we were in the studio. Up at the front of the room, I saw a big desk and the same news anchors I had seen on the TV that morning! The anchors were reading the last few news stories while looking straight into big cameras. *(Children and teacher walking into TV studio room with anchors behind a desk, can see teleprompters/cameras)*

5. After the news was over, one of the anchors asked whether any of us wanted to try. Joey and I both quickly raised our hands. "Come on up' the anchor said. As we climbed up into the chairs behind the desk, he told us about his job. "See those cameras? They have teleprompter boxes on the front that show me what I'm supposed to say. I usually talk about the beginning of a story and then introduce a reporter who will tell our viewers more about it." (*Man walking over to class and asking for volunteers by pointing/gesturing to the chairs behind the panel in from of the teleprompter, Children raising hands with excited smiles.)*

6. I pretended to read off the teleprompter. "Welcome to Channel 2 Action News. " I said in a serious voice, before starting to giggle. (*Children sitting behind the news desk pretending to look serious.)*

7. Next, the news director took us into the newsroom, a big room where people worked at a lot of desks. "As the news director, my job is to make sure everything around here runs smoothly" she said, "I'm in charge of all the people in this room, and if they have questions about things like what stories to report on, I have to decide what to do." I looked around the big room. That sounds like a lot of responsibility, I thought. Being a news director must be a hard job. (*Wide view of a news director leading the class into a large busy-looking newsroom with people working at desks/cubicles.)*

8. "So what do you think are the three main things I need for a television news story?" the news director asked. We had been studying this at school and several people raised their hands.

Samantha said, "You need information about something happening." "That's right," the news director said, "we need to tell a story about real events with information that we've checked to make sure is true." *(News director standing in front of the class asking them a question and children raising their hands. Background should include busy-looking newsroom).*

9. "That's the same for news in newspapers, on the internet and on the radio, too," she said. "But what else do we need for a television story that newspapers and radio don't need?" I raised my hand and she pointed to me. "You need pictures, like video," I said. *(Similar to previous, but with news director talking and children listening)*

10. "Excellent! And what's something we need," she asked, "that newspapers don't need, but radio stories do?" Tracy shouted out, "Sound!" "That's right," the news director said. "When you watch the news, you listen to it, too." (*News director in front of the class with a girl raising her hand high and her mouth wide open to indicate that she's yelling)*

11. Next we went over to a long desk where several people sat in chairs, talking on phones and looking at computers. "Hi guys," a man behind the desk said, "I'm in assignment editor. My job is to find out what's going on that we might want to put on the news today." *Ring, ring!* I heard a phone ring behind us and someone answer it. This room is really noisy for a place that people are trying to work, I thought. "Why is it so noisy in here?" I asked. "Assignment editors make a lot of noise!" the man said. "First, we have to listen on scanners to the radios that police and fire fighters use to talk about what they're doing. That way, if there's an emergency that we might want to put on the news, we'll hear about it as soon as the police and firefighters talk about it." *(Children in front of long row of desks with people on phones/ looking at computer screens, and assignment editor talking to them)*

12. "But what about all the phones ringing?" I asked the man. "The assignment editors also talk on the phone with anyone who might have useful information," he said, "Like people in the government or anyone who calls to tell us about what's happening." *(Similar to previous, with assignment editor gesturing towards people on the phone.)*

13. Just then, his phone rang. "It's the fire department," he said. "They said a little fire that I heard about on the scanner has gotten pretty bad. We should probably send a reporter and photographer over there." "Oh, my goodness," said Mrs. Underwood. "May we go with them?" Oh this is so exciting, I thought. (*Assignment editor with his hand over the mouthpiece of the phone, talking to class. Mrs. Underwood looking surprised).*

14. We all went quickly to the school bus. I could smell smoke before the bus stopped a block from the fire. *(Child on the bus with a view out of the window of a house on fire down the street)*

15. "Everybody stay together," Mrs. Underwood said as we got out of the bus. She asked us to describe what we saw.

"A fire engine."
"A police car and a police officer keeping people back."
" The house that's on fire."
"The TV station van."

I had never seen anything like this is real life before. *(Children getting off the bus and Mrs. Underwood talking, some children pointing, should be able to see a fire engine, police car/officer, house on fire, and TV station van.)*

16. A man in a suit walked over to us from his TV station van. "The fire chief said you all can get as close as that police car," he said, leading the way. "I'm a reporter. My name is Billy, and Erin, my photographer, is shooting video right now. Remember we need pictures? She's shooting video of the house on fire and the fire fighters and people."(*Billy leading the class to stand behind the police car and pointing to his photographer Erin who is shooting videos of the scene.)*

17. Just then, we heard a woman scream, "Fluffy! Where's Fluffy?" Billy ran to Erin, who handed him a microphone. He pointed it at the woman who called to the fire fighters, "My dog didn't come out of the house," she cried. "Oh, my poor Fluffy." The woman looked really scared; I hoped they could get her dog out of the house okay. (*A distressed woman with tears in her eyes pointing to the house as Billy holds a microphone up to her face and Erin films.)*

18. Then Billy got the fire chief to come over. Billy asked the chief a few questions while Erin filmed them on the camera. The fire chief said that the fire started from a pan of bacon grease left too long on the hot stove. Yikes, I thought, I knew stoves were dangerous but I didn't know they could start a big fire like this. (*Billy interviewing the fire chief near the class of students.)*

19. Billy turned back to us and said, "Okay, see? We have pictures. We're getting sound, and the chief is giving us information." "But there's more," the chief said. "This fire got really bad because the nearest fire hydrant had been broken by thieves who stole the pipes in it." "Why would someone do that?" I asked. "We've had this problem before," said the fire chief, "The thieves sell the pipes to businesses that buy scrap metal." *(Billy and the fire chief talking to the children with the chief pointing to the nearby fire hydrant that either looks broken or has police tape around it)*

20. "That's a new part to this story," Billy told us. He used his cell phone to call the mayor's office and learned that the town had 25 broken hydrants that were ruined by pipe thieves. (*Billy walking away from the fire scene to make a call on his cell phone)*

21. "Look!" Erin called to the class as she ran with her camera toward the burning house. I could see a firefighter coming out of the house carrying a wet dog. "Fluffy," yelled the woman we had seen earlier. She ran up to the firefighter and he handed her the dog. I was so glad Fluffy was okay; a few students went over to ask if they could pet her. (*A firefighter carrying a wet/scraggly dog under his arm and the woman earlier running towards him)*

22. Billy said, "We have information, pictures and sound. Now I'll write a story that puts them all together." He told us how he usually sat in the news van and wrote a story on his laptop. He wrote it in two columns. He wrote the words he would say in the story, and the words other people said in video, in the column on the right. He wrote down what pictures the story would use in a column on the left. (*Children outside the van as Billy types on laptop inside.)*

23. While Billy worked on his story, we watched as the firefighters finished putting out the fire. After awhile, Billy read parts of his story into a microphone while Erin recorded his voice in her camera. “Now I’ll edit Billy’s voice with my pictures and sound to make a television news story,” Erin explained. “It will be the story Billy wrote, but will be like a short movie that will go on the newscast.” (*Billy reading part of the story in a microphone in front of Erin and the class watching from the side)*

24. I started walking back towards the bus. “Where are you going?” Erin called after me. “Don’t we have to go take your movie back to the news station?” I asked. “Not yet,” she said, “We have a special way to send that part of the story back to the station and we’ll stay here to do a live shot. That’s where Billy will tell people watching the news what’s happening here at the same as they are watching it at home.” (*Child turning around to go back to the bus and Erin calling out.)*

25. Erin pushed some buttons that made a big pole with an odd-looking box on top rise from the van. It rose in sections, like an old pirates’ telescope. She explained, “That’s our microwave transmitter. It’s how we send pictures and sound back to the TV station so they can put our story on the air.” I thought the news van looked pretty silly with that giant pole sticking out of the top. (*Erin pushing a few buttons and a pole with a box on top rising from the van and the kids of the class pointing.)*

26. Next, Erin connected cables from the van to her camera, a microphone, and some very bright lights. She explained, “The pictures from the camera and the sounds from the microphone go through the cables to the van. Then the microwave transmitter sends them from the van to the TV station, and the TV station sends them to your TV set at home.” “A microwave like we have at our house to pop popcorn?” I asked, “Sort of,” Erin said, “Microwaves are the type of energy signals that are used to heat food in your microwave oven at home, but also to send our video from this transmitter to the TV station” (*Erin showing the children where to connect the cables from the van to the camera, microphone, and bright lights)*

27. When the news came on, we watched by the van, where we could see Erin filming Billy standing in front of the burned house, and could also see a television in the van. On the TV, we saw a different anchor sitting in the studio that they had been in earlier that morning. The anchor said, “Today, firefighters made a brave rescue at a house fire. Billy Wong is live on Oak Street where he learned the town has a big problem for fighting fires.” (*The class watching Billy film his video clip in front of the burned house, and can see into van with tv screen showing same image)*

28. Billy spoke into the camera just like he had rehearsed. Then the station played the story Billy and Erin had made on the video. A woman cried, “My dog didn’t come out of the house. Oh, my poor Fluffy.” Then we saw video of the house on fire and firefighters spraying it with water from hoses. We could hear Billy’s voice saying that the fire started from grease on the stove, but firefighters had a problem. The fire chief was on the story next, saying thieves wrecked the hydrant. Then Billy’s voice told us what the mayor’s office said about 25 broken hydrants in their town. The story ended with video of a firefighter handing Fluffy back to her owner. Then the camera went back to Billy standing on the street in front of the house. “This is Billy Wong,

reporting live, for Channel 2 Action News." After the live shot was over, we all clapped for Billy and Erin. (*Closer view of TV screen over child's shoulder with image of house of fire)*

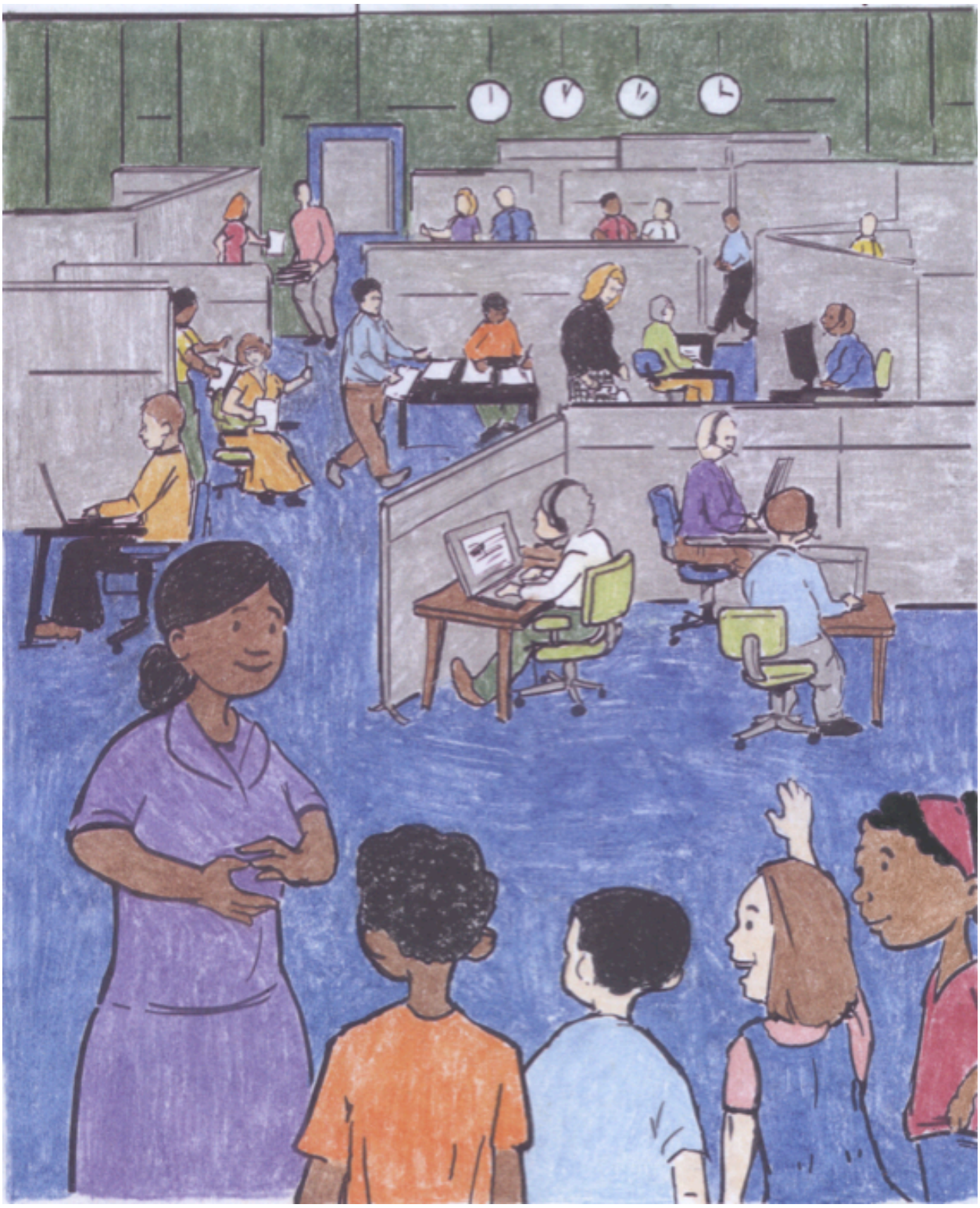
29. As they were putting the cables back into the van, Billy took a call on his cell phone. He told the students, "That was a police captain, who saw our story and called to say they arrested two men for stealing pipes from fire hydrants." *(Erin putting away the cables and Billy on his cell phone.)*

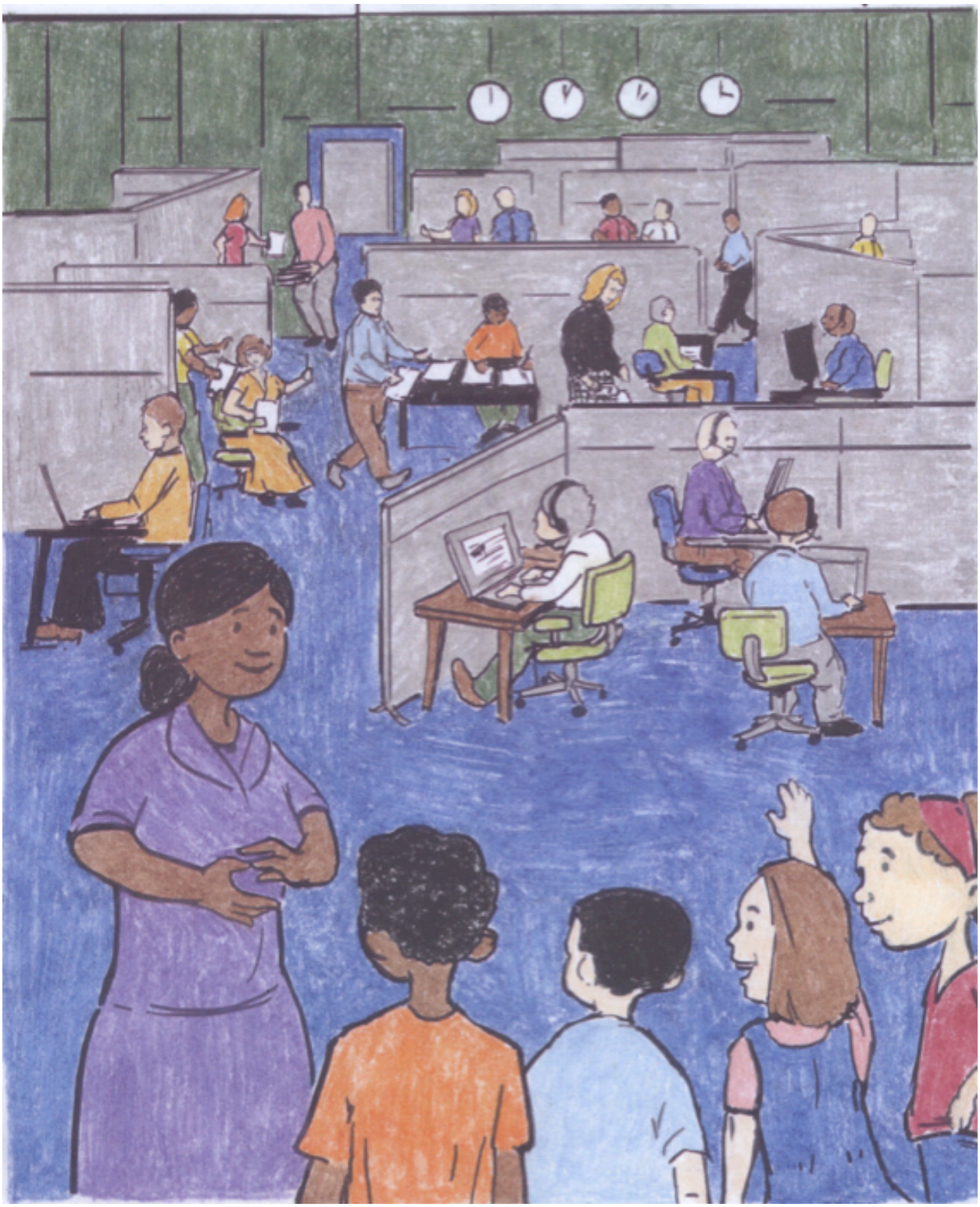
30. "So now, he said, "we have new information. We'll go interview the police captain for new sound, and get new pictures of stolen things the police found." *(Billy talking to children.)*

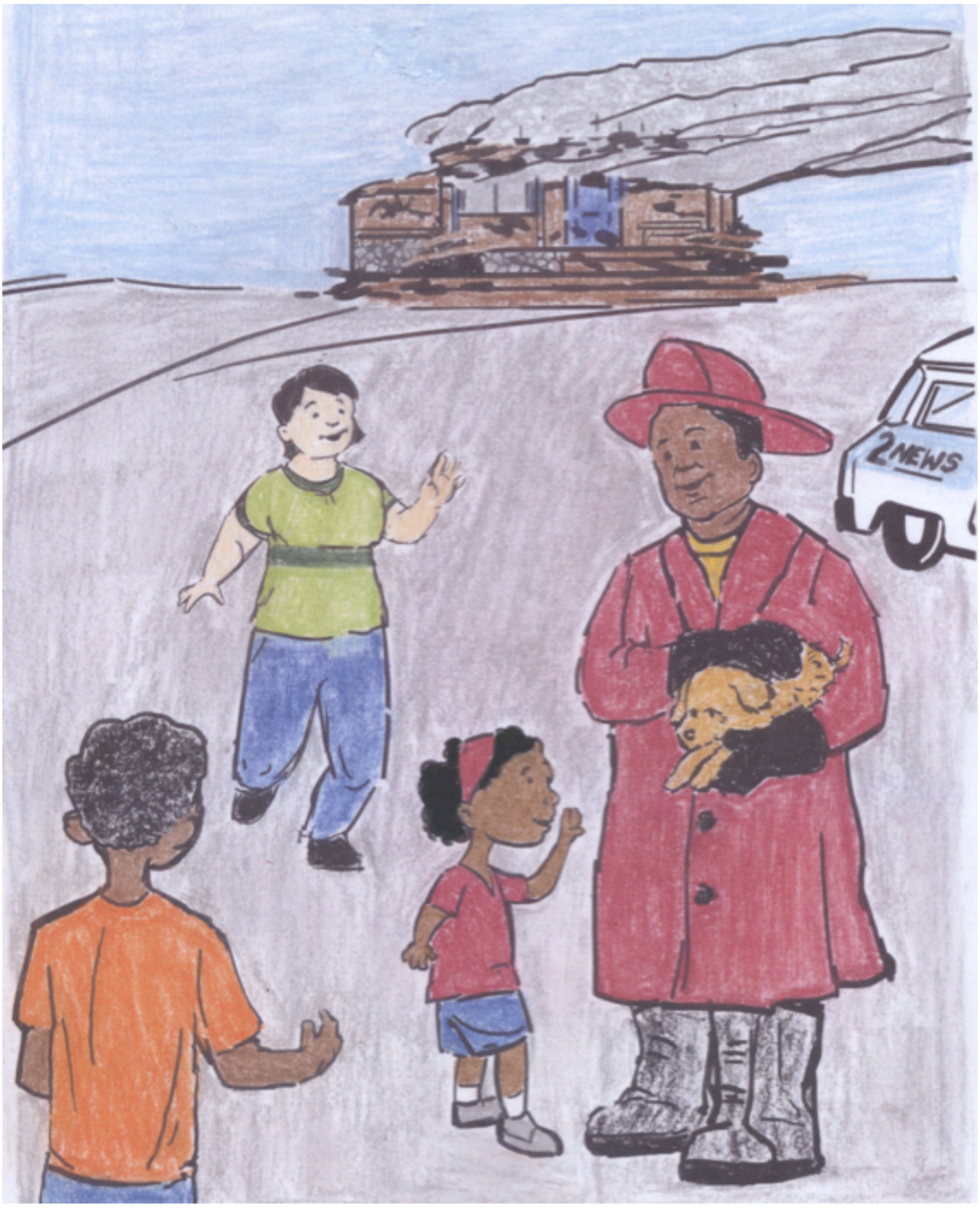
31. Then it was time for us to go back to school, so we said goodbye to Billy and Erin and thanked them for telling us about their jobs. *(Children waving to Billy and Erin and walking to the bus.)*

32. When I got home after school, I told my parents all about our adventure. "Oh it's almost five o'clock," my mom said, "Let's turn on the news." We saw the parts of the story I watched Erin and Billy film at the house fire, and the new parts Billy and Erin got after our class went back to school. I was excited that I was right there as the big news of the day was happening. (*Child sitting on the couch watching the news with parents.)*

Appendix B: Sample images from the female storybooks



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