Chapter 14

Absorption in Narrative Fiction and its Possible Impact on Social Abilities

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Abstract

A growing body of evidence suggests that exposure to narrative fiction may be related to our ability to empathize with others, take their perspective, and understand what they are thinking and feeling. In this chapter we review the available empirical research linking narratives with the ability to infer others' mental states, as well as the possibility that those who become more transported into a story might exhibit better mental-inference ability. We close with a discussion of how these issues relate to narratives in audiovisual modalities, such as TV shows and videogames.

Keywords: Reading; Television; Videogames; Empathy; Mentalizing; Mental Inference; Perspective-Taking; Neuroscience; Transportation; Autism Spectrum Disorder.

1. Introduction

While absorbed, we typically have thoughts and emotions that are consistent with the world of the story (Gerrig, 1993). We may, for example, think to ourselves that it is a terrible idea to peek behind the mysterious door in the basement of an abandoned house (Polichak & Gerrig, 2002). Or, we might experience a feeling of dread or fear as the protagonist ignores our silent warnings and proceeds to venture through said door. After leaving the theatre, or closing the covers of a book, do these thoughts and feelings leave any trace? It may be that these experiences remain compartmentalized, that imagined experiences buttressed by narrative presentations remain in the world of fantasy and fail to hold any influence in the real world. Another possibility is that our experiences in fiction can shape our real-world attitudes, beliefs, thoughts, emotions, and behaviours. Empirical research indicates that the latter is likely to be true; there is ample evidence that fictional narratives do indeed hold an influence outside of the narrative context, with respect to many aspects of how

we think, feel, and behave (Mar & Oatley, 2008; Green, Strange, & Brock, 2002).

One intriguing area of research on the impact of narrative centers more narrowly on the possibility that narrative experiences may better our ability to "mentalize": to accurately infer and appreciate others' thoughts and feelings. In this chapter we provide an overview of the existing research linking stories to social abilities and critically examine how absorption might influence this process. We close by examining possible future directions, including a consideration of possible interventions based on our growing knowledge in this area and a wider examination of other narrative modalities, specifically the interactive storytelling afforded by videogames.

2. Fiction Supports the Simulation of Social Experiences

Narrative fiction is inherently social in nature (Bruner, 1986). The stories we find in fiction are predominantly anthropocentric, most often detailing distinctly human motivations and emotions, along with complicated interpersonal interactions between individuals (Hogan, 2003; Oatley & Gholamain, 1997). Further, it is often the case that fictional narratives realistically portray the subtle nuances of social situations, as well as what brings these situations about

and how they are resolved. Writers of fiction typically take great pains to represent human psychology and human relationships as accurately as possible. As a result, narratives seem likely to contain accurate knowledge of the social world, allowing them to provide insight into human psychology and human relationships (Oatley, 1999; Mar & Oatley, 2008). This is not only true of stories geared towards adults; we find the same focus on social content and mental states within children's fiction (Cassidy et al., 1998; Dyer et al., 2000). In contrast, other genres do not tend to have this same focus. Nonfiction essays, for example, tend to fulfill a more informational role by communicating ideas and arguments, and lacking the representation of a social world with interacting characters (Oatley, 1999; although exceptions like biography certainly exist). Indeed, what might make narrative fiction unique from other genres, such as expository non-fiction, may be the former's emphasis on social content (Mar & Oatley, 2008).

Oatley (1994, 1999) proposes that when reading fiction we simulate the story events in our minds in much the same way that software simulations might run on a computer. If we accept that the stories in fiction are predominantly social in nature, then narrative fiction would seem to prompt a richly detailed and embodied imagining of distinctly social experiences. In engaging with fiction we often identify with characters (Cohen, 2001), taking on their perspective the way we might assume a role (Oatley, 1994; 1999). In

this way we can enter into a wealth of varied interpersonal contexts, conflicts, and interactions, gaining access to a wider range of social experiences than we might encounter in our own lives. Engaging with narrative fiction might therefore serve to expand our horizons, broaden our minds, and enrich our understanding of others. In other words, although authors fabricate the situations depicted in fictional narratives, they are not false. Rather, fiction has the potential to reveal useful truths about our real social world (Oatley, 1999; Mar & Oatley, 2008).

In comprehending narratives, we may draw upon the same mental processes that we rely upon to understand real-world social events (Gerrig, 1993; Mar & Oatley, 2008). In the real world, understanding others is thought to rely upon our ability to infer the mental states of others, known as theory-of-mind, or "mentalizing". Because others' thoughts, beliefs, motivations, attitudes and the like cannot be observed directly, they must be inferred on the basis of a variety of cues, including nonverbal behavior and knowledge of situational influences. This can be achieved by mentally simulating what others are thinking and feeling, relying upon lay theories of human psychology and other propositional content related to mental states, or some combination of the two (Harris, 1992; Carruthers & Smith, 1996). Similarly, when reading fiction, one of the primary goals of a reader is to infer the thoughts and feelings of the characters (Zunshine, 2006). It may be, then, that engaging with narratives allows us to

practice inferring and attributing mental states to others (Mar & Oatley, 2008).
If this is true, then we would expect that experience with stories would predict
better social abilities, with these social processes being honed and improved
through frequent practice during narrative comprehension. In this way, inferring
the mental states of others might become more accurate, less effortful, more
rapid, and perhaps more rewarding as a function of our level of experience with
comprehending fictional narratives.

3. Empirical Evidence that Fiction is related to Real-World Social Understanding

3.1. Neuroscience

A growing body of empirical research supports the idea that our experiences
with fiction are related to real-world mentalizing. Some of this evidence comes
from neuroscience. For example, a review of neuropsychological patient work
finds that many brain regions associated with social cognition also underlie
narrative processing (Mar, 2004). Similarly, both qualitative and quantitative
meta-analyses of neuroimaging research find that the brain regions activated
during story comprehension also tend to be activated during mental inference

(Ferstl, Neumann, Bogler, & von Cramon, 2008; Mar, 2011; Mason & Just, 2009). This observation of a shared neural substrate for story processing and social cognition is consistent with the idea that real-world social processes may be engaged during story comprehension (although other explanations certainly exist; Mar, 2011). A promising direction is neuroimaging studies designed to specifically investigate how these shared brain regions might contribute to either narrative comprehension, mentalizing, or both processes (e,g., Ferstl & von Cramon, 2002). For example, Diana Tamir and colleagues (2015) report that a specific network of brain regions appears to be responsible for processing social content in literary passages, and that the amount of activation in this network exhibited in response to literary passages helped to account for the correlation observed between exposure to fiction and social cognition performance. Taken together, these findings suggest that increased activation of this network may undergird the superior mentalizing ability found among those who read more fiction.

3.2. Behavioral – Correlational

Behavioral studies with adult participants also find a link between reading narrative fiction and social cognition. In one of the earliest investigations into this topic, Siddiqui, West, and Stanovich (1998) find a positive correlation

between how much exposure people had to various types of texts and the understanding of complex mental-state verbs. This study, however, does not differentiate between narrative fiction and expository nonfiction. Research that followed up on this initial result finds that this association appears to be unique to fiction. For example, lifetime exposure to narrative fiction (as assessed by familiarity with the names of fiction authors) is associated with better performance on a mentalizing task, whereas no such association exists for exposure to nonfiction (Mar, Oatley, Hirsh, dela Paz, & Peterson, 2006). Importantly, this association between fiction and mentalizing replicates across a number of other research groups (Bal & Veltkamp, 2013; Black & Barnes, 2015a; Djikic, Oatley, & Moldoveanu, 2013; Kidd & Castano, 2014; for a meta-analysis see Mumper & Gerrig, in press).

Additional work on this topic has begun to delve into the precise nature of this association, its generalizability to other populations, and potential influences on broader attitudes. For example, Fong and colleagues (2013) investigate whether the genre of what is read plays any role in this association and identify the romance genre as being the most robust predictor of mental-inference ability. Given that romance novels center on social interactions, specifically romantic relationships, this finding is consistent with the idea that it is the representation of the social world in fiction that is associated with beneficial social outcomes. A series of other studies examine whether similar

findings are also observable in children. On the whole, existing research supports the idea that children's exposure to storybooks predicts their theory-of mind-development (i.e., their awareness that others have mental states that might differ from their own; Astington, Harris, & Olson, 1988). For example, a higher frequency of parent-child book-reading predicts more advanced theory-of-mind abilities in children (Adrian, Clemente, Villanueva, Rieffe, 2005). Parents with greater expertise in choosing children's fiction also tend to have children who are rated as more empathic by their teachers (Aram & Aviram, 2009). Finally, parents who have more exposure to children's books have children who perform better on a battery of theory-of-mind tasks (Mar, Tackett, & Moore, 2010). Although these findings are correlational, it is worth noting that these studies with children are less consistent with the alternative explanation that it is mentalizing ability that drives reading behavior, as young children have less control over the amount of fiction they are exposed to relative to adult readers (e.g., preschool-aged children may request stories, but these requests may not be met). Lastly, research on this topic has begun to branch out in other directions, demonstrating that exposure to narrative fiction influences broader attitudes likely related to mentalizing. For example, those who are exposed to more narrative fiction tend to hold more egalitarian views regarding gender and also engage in less sex-role stereotyping (Fong, Mullin, & Mar, 2015).

An important caveat of the results discussed above is that they rely on correlational methods, which means that causal inferences cannot be supported. That is, it is impossible to say whether reading causes better mental inference, better mental inference ability motivates reading behavior, some third variable accounts for the observed associations, or even some combination of these different explanations (cf. Argo et al., 2008). In order to address these concerns, the aforementioned studies measure potential third variables and control for them statistically, ruling out alternative explanations such as the influence of gender, age, proficiency with English, personality traits (e.g., extraversion or openness to experience; Mar et al., 2006; 2009), need for cognition (Appel & Richter, 2007), vocabulary ability and parental income (Mar et al., 2010), maternal education (Aram & Aviram, 2009), as well as verbal mental age and paternal education (Adrian et al., 2008).

3.3. Behavioral - Experimental

Researchers examining the relation between narrative fiction and social cognition also employ experimental paradigms, which allow for inferences regarding causal direction. In brief, these studies randomly assign people to read either narrative fiction or expository nonfiction and measure whether any boosts in mentalizing ability are observed immediately afterward. Although

these paradigms can support causal inference, they rely upon the assumption that improvements in theory-of-mind will be observable after single brief instances of exposure to narrative fiction, and that if such improvements are observed they are linked to long-term lasting changes in mentalizing ability. To date, the results of these experimental investigations has been somewhat mixed. In one study, participants were randomly assigned to read either a short story or an essay, matched for length and reading difficulty, with all participants completing measures of social ability both before and afterward (Dijikic, Oatley, & Moldoveanu, 2013). Being assigned to read a short story did not result in better social ability relative to reading an essay, counter to the authors' hypothesis. In another key paper, Kidd and Castano (2014) report improvements in mental inference after reading brief excerpts of literary fiction, compared to reading excerpts of popular fiction, nonfiction, or nothing at all, across five experiments. Unfortunately, however, a recent attempt to replicate the findings of Kidd and Castano (2014) failed to detect a similar effect of their experimental manipulation (Panero et al., 2016). Other studies have proven more promising. For example, Black and Barnes (2015a) find that participants perform better on an interpersonal sensitivity task after reading literary fiction compared to nonfiction, whereas text genre has no effect on performance for a measure of non-social cognition (intuitive physics understanding). Similarly, Pino and Mazza (2016) report that when their participants read an entire book

from one of three possible genres—literary fiction, nonfiction, and science fiction—those who read a literary fiction book exhibited an improved ability to infer the mental states of others. The Black and Barnes (2015a) study employed a within-subjects design, which is more sensitive to subtle effects as a function of better controlling for individual differences. In a similar fashion, the Pino and Mazza (2016) study asked participants to read entire books, which may have strengthened the experimental manipulation. Both approaches may indicate that the immediate effects of fiction on social cognition may be small and subtle, and therefore only observable using sensitive designs or when exposure is longer (and the experimental manipulation therefore stronger). Interestingly, a second paper by Black and Barnes (2015b) reports similar improvements in theory-of-mind abilities after watching film narratives compared to documentaries. This suggests that the effect of fiction on social cognition might generalize to other media. An excellent review of the current theories and research on the relation between reading and empathy can be found in an article by Koopman and Hakemulder (2015).

In summary, a diversity of evidence seems to support the idea that exposure to narrative fiction might aid our ability to understand others. However, there are certainly some inconsistencies in this research that need to be investigated and explained. One step toward this enhanced understanding is the exploration of possible moderators.

4. Could Absorption Moderate the Relation Between Reading and Social Outcomes?

One possible moderator of the association between fiction and social abilities is narrative absorption, or how involved in the fictional world a reader becomes (Gerrig, 1993; see Chapters 1 and 2). If it is the case that reading fictional narratives elicits social simulations, then greater absorption while reading might enhance the degree to which readers simulate and learn from the story world. Consistent with this idea, there is growing evidence that readers who are absorbed in a story are more likely to shift their attitudes and beliefs to be consistent with those beliefs embedded in the story (explicitly or implicitly), relative to those who are less absorbed (e.g., Green & Brock, 2000; Vaughn, Hesse, Petkova, & Trudeau, 2009; Appel & Richter, 2010). The degree of absorption that readers experience is related to a variety of factors, including frame of reference, the personal relevance of the story, the story's verisimilitude to actual experiences, and/or character identification (Green & Brock, 2000; Bal, Butterman, & Baker, 2011). Character identification in particular seems to be especially important when discussing the potential mentalizing benefits of reading narratives. Identifying with a character involves

theory-of-mind (i.e., understanding the character's emotions), affective empathy (i.e., sharing the character's emotions), as well as cognitive empathy (i.e., experiencing and interpreting the narrative from the character's perspective; Tal-Or & Cohen, 2010; Chapter 6).

Transportation into a fictional narrative might influence the impact of stories by reducing the psychological distance between the self and the story-world and the characters within it (e.g., Kaufman & Libby, 2012). This greater psychological closeness might in turn facilitate greater identification with these characters, allowing readers to better experience the story from the point of view of the characters. It is possible that this process may explain the impact of narrative absorption on attitude change. For instance, Green (2005) suggests that more absorbed individuals experience character identification more intensely and are therefore more likely to align their attitudes with those of the character. This argument can be extended to the potential mentalizing and empathic benefits of narrative exposure. Being more transported into a narrative might help the reader to more fully experience the character's emotions and perspective, creating a heightened vividness. This vividness might translate into a greater degree of perceived verisimilitude, increasing the likelihood of engaging social processes and improving real-life empathic skills. It is important to note, however, that the directionality of the relationship between absorption and character identification is still under debate. The two often co-

vary and are frequently conflated in research examining audience responses to narratives (Tal-Or & Cohen, 2010; Tal-Or & Cohen, this volume). It could be the case that having a character with which one can identify makes a story more compelling and therefore more absorbing. That being said, this does not preclude the possibility that absorption promotes social skills by making the act of experiencing another person's perspective and emotions feel more real. An interesting set of studies by Kaufman and Libby (2012) highlight the complex relationship between absorption and character identification. For example, interventions that interfere with absorption processes (i.e., experimentally inducing heightened self-awareness) result in less character identification and reduced attitudinal change. However, these studies also demonstrate that highlighting differences between the reader and the character early in the narrative (e.g., indicating that the main character belonged to an out-group) also result in a lower likelihood of taking the perspective of the character. Thus, this set of studies seems to indicate that absorption influences the likelihood of taking the perspective of a character, but that readers' feelings toward a character can also affect their willingness to become immersed in a narrative. Overall, there could be a bidirectional relationship between character identification and absorption that is moderated by the expectations and motivations imposed on the narrative by the reader.

Some empirical research directly addresses the question of how absorption relates to the association between reading and social outcomes. For example, Johnson (2012) examines the effects of absorption on empathic concern and prosocial behavior after reading a piece of fiction. Participants read a story specifically designed to elicit compassionate feelings and model prosocial behavior. Greater absorption into the story was found to predict the experience of empathic emotions while reading the story, and also predict prosocial behavior in the form of helping the experimenter pick up pens that were dropped to the floor. In other words, a higher degree of absorption is related to feeling and behaving in a manner consistent with the story that was read. In another study, Bal and Veltkamp (2013) examine the moderating role of transportation using an experimental approach. Two experiments compare the effect of reading either fiction or nonfiction on social abilities. The first study finds that only readers who were more emotionally transported into the fictional texts experienced increases in self-reported empathy a week later; absorption did not influence changes in empathy among those assigned to read the nonfiction text. However, the researchers' second study finds that low levels of transportation led to decreases in empathy over time, failing to replicate the finding from the first study that higher levels of transportation produce increases in empathy. In sum, there is some empirical evidence that absorption plays a moderating role in the association between fiction-exposure and social

abilities, but the pattern of results is somewhat inconsistent and more research is needed to better understand this phenomenon. In addition, absorption or narrative transportation is not likely to fully explain the relationship between reading and mentalizing, as a previous study controlled for absorption and still found this association (Mar, Oatley, & Peterson, 2009). One avenue that should be better explored is how the different facets of transportation or absorption might influence this relationship.

The process of how readers engage with narratives is a multifaceted phenomenon (Kuijpers, Hakemulder, Tan, & Doicaru, 2014), with our understanding of the underlying dimensions still evolving (Green & Brock, 2000; Busselle & Bilandzic, 2009). Although different models of this phenomenon have been proposed, a common element across these models is the underlying dimension of emotional engagement (cf. Chapters 1, 2, 6 and 12). Being engaged emotionally with a narrative entails both sharing characters' feelings (i.e., affective empathy) as well as caring for these characters (i.e., empathic concern). It is possible that emotional engagement is the most relevant aspect of absorption with respect to honing social skills through narrative exposure. It is through this aspect of absorption that the reader engages with the mental states of characters, practicing skills like theory-of-mind and empathy. Consistent with this idea, in their study of reading and empathy, Bal and Veltkamp (2013) examine four aspects of absorption using a

scale developed by Busselle and Bilandzic (2009): (1) narrative understanding, (2) attentional focus, (3) narrative presence, and (4) emotional engagement. They find that only emotional engagement predicted increases in empathy among those who read fiction. This suggests that there is something unique about the emotional engagement aspect of transportation that contributes to increases in empathy.

The emotional engagement aspect of transportation might also help to explain differences observed between the outcomes of reading narrative fiction versus expository nonfiction. Narrative fiction seems intuitively more emotional in nature compared to expository nonfiction; whilst the former is often crafted with the purpose of moving us emotionally (Mar, Oatley, Djikic, & Mullin, 2011), the latter often strives to unemotionally communicate arguments and information (Mar & Oatley, 2008). Empirically, correlational studies typically find a stronger association between narrative fiction and mentalizing, with expository nonfiction often failing to predict once shared variance is accounted for (Mar et al., 2006, 2009). Experimental work finds similar results. For example, Foroni & Mayr (2005) randomly assigned individuals to read either a fiction or nonfiction text, with both texts portraying insects as having positive and desirable characteristics. Individuals exposed to the fiction text showed greater changes in implicit attitudes consistent with the text (i.e., viewing insects more positively) than those who read the nonfiction

text. Similar results were found in a different study, in which participants who were encouraged to simulate the experience of discrimination experienced a greater reduction in prejudice when this was presented as a fictional scenario in narrative form compared to those who heard an expository lecture on discrimination (Hodson, Choma, & Costello, 2009). Overall, these studies suggest that fictional experiences might elicit a sense of emotional immediacy or mental immersion that expository nonfiction exposure does not. This increased engagement may play a key role in the process of promoting empathy, particularly towards targets that are typically viewed negatively, such as out-groups. Findings such as these raise the attractive possibility that absorption into fictional narratives could be employed to promote empathy or perspective taking for certain populations that experience difficulty understanding others.

5. Absorption into Fictional Narratives as a Possible Intervention

The growing evidence that narrative fiction might yield positive social outcomes suggests that although reading fiction is typically associated with entertainment, it might also have practical consequences (Oatley, 1999). Said otherwise, exposure to fiction seems to provide an opportunity for individuals

to develop their understanding of human thought, emotion, and behavior. A natural extension of this idea is to ask if a narrative intervention might yield practical gains for clinical populations who show social skill impairment. One population of particular interest is individuals with Autism Spectrum Disorder (ASD). A triad of symptoms broadly characterizes ASD: a narrow repertoire of interests and behaviors, deficits in communication, and significant social impairment (APA, 2013). Although the characteristic impairments of children with ASD have been extensively documented, the intervention literature is comparatively limited. The lack of research on a potential narrative intervention is particularly surprising in light of the fact that (1) ASD deficits may arise from a specific difficulty with cognitive perspective-taking (i.e., theory-of-mind; Baron-Cohen, 1988, 1995; Capps, Losh, & Thurber, 2000; Tager-Flusberg, 1995) and (2) much research on ASD involves measures that utilize narratives and narrative tropes (e.g., stories, faux pas, irony, sarcasm, metaphor; e.g., Baron-Cohen, O'Riordan, Jones, Stone, & Plaisted, 1999; Barnes, 2012).

To the best of our knowledge, only two studies experimentally investigate the effectiveness of narratives as an intervention strategy for children with ASD. In the first, researchers asked teachers read three popular children's books to children with ASD over the course of 30 minutes, three times a week for a total of six weeks (Dodd, Ocampo, & Kennedy, 2011). After each session, the children were guided through a discussion that either focused on the

character's emotions and mental states (perspective-taking intervention) or story elements unrelated to perspective taking, such as narrative structure and vocabulary. The authors report that when asked to retell the stories, children in the perspective-taking group made more references to the mental-states of characters and were better able to re-tell stories from the perspective of multiple characters. More recently, Tsunemi and colleagues (2014) had parents provide their children with intensive experience with a set of narratives specially-prepared to promote perspective-taking, over the course of five or six days for 30 minutes per day. This was followed by a loosely guided discussion of characters' mental states. A separate group of children were not exposed to this material at all. The researchers report that children in the intervention group displayed significantly improved social perspective-taking as measured by a role-playing task (Selman, 1980), but unchanged perceptual perspective-taking (the three-mountain task; Piaget & Inhelder, 1956) and cognitive perspective-taking (false belief task; Perner & Wimmer, 1985). In comparison, children in the control group showed no improvement across any of the tasks. Impressively, this improvement in social perspective-taking for the experimental group was observed even 40 days later, similar to a separate study of non-autistic children (Lystaker, Tonge, Gauson, & Miller, 2011). Both of these studies, although preliminary in nature, show some promise for a story-based intervention to develop theory-of-mind abilities among individuals with

ASD. The potential benefit of narrative interventions for people with ASD has also received some preliminary support from research with non-clinical samples. For example, Black and Barnes (2015a) administered a brief version of the Autism-Spectrum Quotient (AQ-S; Allison, Auyeung, & Baron-Cohen, 2012) and a mental-state inference task to a non-clinical sample. The AQ-S is a ten-item self-report questionnaire that assesses the degree to which individuals possess autistic traits. Replicating prior research, the authors report a negative correlation between overall scores on the AQ-S and task performance, but find this correlation to be weaker for those who read fiction as opposed to nonfiction.

Due to the preliminary nature of the available research, it is necessary to point out some important caveats of this work. First, both interventions discussed above include directed discussion of the narrative and characters' mental states. For children with ASD, guided discussion may be a necessary component to any successful narrative intervention, with reading alone possibly insufficient. Second, neither study establishes that improved social acumen generalizes beyond the confines of the classroom or laboratory. In fact, Tsunemi and colleagues (2014) note that caregivers reported no anecdotal impressions of improved perspective taking in their children. Third, ASD is a complex and heterogeneous disorder and so the preliminary results discussed above include no promise that social simulation will prove beneficial for all

disorder profiles. Nonetheless, the current evidence is certainly sufficient enough to encourage further investigation into the possibility of narrative interventions for children with ASD.

Although neither of these studies directly measure how absorbed participants became with the fictional narratives, there are several theoretical reasons to believe that narrative absorption may be precluded in cases of profound ASD impairment. As a result, narrative interventions seem likely to offer little therapeutic value to those who suffer from severe forms of ASD. Many individuals with ASD are biased towards rule-based reasoning and approach narratives as a system of facts (Baron-Cohen, 2002, 2006). However, few fictional narratives employ a rule-based structure. Moreover, applying systems-based reasoning to social interactions may lead to erroneous or impoverished interpretations of others' mental states (Barnes, 2012). That being said, it may be that targeted materials could prove an effective intervention for individuals with mild or moderate impairment. Specifically, these materials could be designed to contain an appropriate frame of reference, characters with which the target population is likely to identify, and a plot that is believable and conducive to the audience's imagination (Van Laer et al., 2012). In developing potential interventions, one additional factor to consider is that other story-telling modalities may be more intuitively attractive to certain populations, such

as television or videogames in the case of younger patients, or those more inclined toward technology.

6. Television and Videogame Narratives

In this chapter, we have largely discussed how narrative texts can facilitate social skills. But it should be obvious that narrative is not limited to the written form. Mar, Tackett, and Moore (2010) find that exposure to children's movies (although not children's TV shows; see also Nathanson et al., 2013) predicts children's performance on theory-of-mind tasks to the same degree as exposure to children's storybooks. More recently, Black & Barnes (2015b) find that participants assigned to view a TV drama consequently perform significantly higher on a mentalizing task than those assigned to view a documentary. Together these studies provide evidence that audio-visual narratives can also facilitate the understanding of others' minds. Indeed, audio-visual media such as television or film may be even more effective at developing theory-of-mind as a result of a richer and more salient presentation. Another medium to consider is videogames, which take this same audio-visual presentation and adds an interactive component.

In video games, one defining feature of these worlds is the use of an avatar. An avatar is a digital representation within the virtual environment that can represent either the user (e.g., a user generated self-representation) or an existing character. Individuals can become highly invested in their avatars and in some cases consider their avatars to be a part of their identity even outside of the virtual environment (Chandler, Konrath, & Schwarz, 2009). In contrast to other media such as narrative texts or films, avatars allow individuals a high degree of control over that character, particularly with regard to movement and actions within the virtual environment. This increase in interactivity and control affords the potential for high levels of embodiment, here understood as the idea that some physical experiences can activate conceptually related psychological experiences. For example, nodding one's head while listening to a persuasive message leads to greater agreement with the message compared to shaking one's head (Wells & Petty, 1980), presumably because the physical action of nodding is closely related to holding a positive attitude (i.e., nodding in agreement). Although engaging with an avatar does not provide an individual with true physical feedback, avatars can be considered an extension of the self. Indeed, the closer individuals feel toward their avatar, the more likely they are to be transported into the virtual environment and this may make these experiences more impactful. For example, individuals controlling their avatars from a first-person point of view (i.e., looking out at the world as if the player is

located inside the character) tend to report higher levels of absorption with the virtual world compared to individuals employing a third-person point of view (i.e., looking at the character in the world; Lim & Reeves, 2009). Avatars can also act as a proxy for bodily feedback, with the experience of controlling an avatar leading to patterns of psychological activation related to traditional demonstrations of the embodiment effect. Importantly, embodiment is distinctive from perspective taking and other forms of identification because individuals are able to actually see and control themselves as another person, rather than simply imagining it (Groom, Bailenson, & Nass, 2009). In other words, embodiment not only has the potential to facilitate an individual's simulation of a character's mental states, but it also encourages increased psychological closeness between the individual's self-concept and the character.

High levels of embodiment can lead to important outcomes for users, particularly with respect to changes in self-concept. Exposure to an avatar can simultaneously activate not only the controlling individual's self-concept, but also a number of related psychological categories associated with the avatar. In this way, traits associated with the avatar become associated with the self. Even subtle changes to an avatar's appearance can influence users' subsequent self-concepts and behaviours (Yee & Bailenson, 2007). For example, individuals assigned to use an attractive avatar instead of an unattractive avatar consider

their real-world selves to be more attractive and chose more attractive dates from an online dating site. Importantly, these changes to self-concept do not occur if individuals simply observed rather than controlled the avatar (Yee & Bailenson, 2009), indicating that controlling the avatar provides an important level of absorption needed to produce embodiment outcomes.

The influence of avatars is not limited to their physical appearance, as individuals imbue their avatars with personality and social characteristics (Bessiere, Seay, & Kisler, 2007). Individuals' self-concepts are also open to influence from their avatar's perceived traits. Yoon and Vargas (2014) find that individuals who were assigned to play a video game as a heroic character exhibited more pro-social behavior in a subsequent task whereas those who played as a villainous character exhibited more antisocial behavior. Thus, embodiment in an avatar can lead to important social outcomes, even outside of the context of the virtual environment. Embodiment in an avatar can also facilitate connections between an individual's self-concept and a social category to which they do not actually belong. For example, embodying a black avatar was found to elicit greater changes in implicit attitudes than simply imagining oneself as a black person (Groom et al., 2009). However, it is important to be mindful that embodiment can also lead to greater negative outcomes as well. In this same study, the authors find that embodiment in a Black avatar led to increased implicit bias toward Blacks, potentially because of

greater stereotype activation. That said, it is possible that avatar embodiment could encourage positive social outcomes, especially when accompanied by a narrative with strong pro-social or counter-stereotypic themes.

Some virtual environments are distinct from other fictional worlds in the sense that individuals can engage with a fictional character in the form of an avatar independent of an existing narrative. Although many studies that discuss engagement with avatars examine unstructured virtual environments that lack narrative components, there is reason to expect that narratives might also play an important role in both absorption (or presence) in the virtual environment and embodiment. Exposure to narrative information in the form of a brief film or a written script before playing a game tends to increase individuals' feelings of presence while playing the game, as well as their enjoyment (Park, Lee, Jin, & Kang, 2010). Moreover, including narrative components into gameplay not only increases feelings of presence, but also individuals' feelings of closeness with their avatar (Schneider et al., 2009). Ip (2011) argues that the narrative structure of video games, particularly role-playing games, allows video game characters to depict complex emotions that can carry over to the player. In line with this idea, transportation may be particularly likely to occur while playing role-playing games (Brookes, Moyer-Gusé, & Mahood, 2011). Additionally, absorption into a narrative predicts greater emotional responses to players' actions within a virtual environment (e.g., guilt after committing an immoral

act), as well as subsequent behaviors in the real world (Mahood & Hanus, 2015). Thus, narrative can act to facilitate absorption into virtual environments and potentially increase the likelihood of embodiment. Overall it seems that narratives play a central role in guiding outcomes of engaging with virtual environments, with narrative absorption an important moderator in determining the magnitude of resultant effects.

Transportation into virtual worlds and embodiment of virtual characters could have practical applications. For example, some independent game developers have begun to consider how transportation and embodiment can help players better understand and empathize with others facing difficulties, such as post-traumatic stress after a sexual assault (Joho, 2015; Tusmorke, 2015). The goal of these developers is to create an experience in which the player is immersed in the challenges and simulated sensations of victims in order to generate empathy through virtual perspective taking. Because the aftermath of sexual assault can be difficult for survivors to communicate, the developers hope that creating an immersive experience would convey the challenges and emotions that assault survivors face in a rich and compelling fashion. The efficacy of games such as this is unclear at the moment, which makes this a topic ripe for future study.

Videogame narratives may afford more immersive social simulations than texts alone as a result of their audio-visual presentation. Unique from films and

television, virtual environments might also employ embodiment to strengthen the connection between an individual's sense of self and the experiences of a fictional character. We have thus far focused on immediate outcomes that follow engagement with particular avatars or virtual environments. But there may be cumulative effects of frequent engagement with virtual worlds, particularly those that expose individuals to varied and challenging narratives. Research in this area is nascent and insight into the processes and moderators of embodiment with respect to avatars is currently limited. Empirical work is needed not only to test the boundaries of the effects in virtual environments, but also to compare this medium with other narrative contexts (e.g., film, text) and more fully explore how absorption relates to these outcomes. In particular, although we have discussed embodiment as a likely outcome of engagement with virtual worlds and video games, it is possible that embodiment also occurs during engagement with other media, albeit to a lesser extent. Examining the differences in degree of embodiment elicited between media types may provide further insight into an important facet of narrative absorption. Given the potential for influences on self-concept and social outcomes, it is important to understand the factors that facilitate embodiment including factors that impact absorption into virtual worlds.

7. Conclusions

In this chapter, we have described how narrative fiction may act as a
simulation of the social world (Mar & Oatley, 2008), providing evidence from
neuroscience, correlational studies, and experimental investigations that support
this theory. Importantly, engaging with narrative fiction has the potential to
allow individuals to practice and ultimately strengthen their social skills,
thereby promoting positive social outcomes such as increased empathy.
Furthermore, narrative absorption may moderate this relationship between
narrative fiction and social outcomes, and so there is a potential for absorption
to be leveraged in applied contexts as an intervention to improve mentalizing
abilities. Finally, narrative absorption may play a role within a wealth of other
media, including interactive media such as video games.

Although there are good theoretical reasons to hypothesize that absorption
into narratives might be a powerful moderator when considering whether
fictional narratives promote mentalizing and empathy, there is much work to be
done in this area. At the moment, there is inadequate empirical evidence
available to properly evaluate this potential and so this remains a highly
promising avenue for future research. For example, future work should consider
experimentally manipulating narrative transportation so the moderating
influence of transportation can be causally tested, rather than only employing a

measurement approach to the moderating variable. More effort should also be directed toward distinguishing between character identification and narrative transportation, so that the influence of these two constructs can be more carefully delineated. A wider range of media should also be examined, with more work on audio-visual narratives like television and interactive media like videogames strongly encouraged. We are currently in the midst of an exciting "boom era" for research on fictional narratives and their effects, with transportation into these narratives at the very center of this fascinating research topic. It our hope and firm expectation that many of the interesting questions we pose in this chapter will come to be answered over the following years.

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