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Stories and the Promotion of Social Cognition

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Abstract

Engaging with fictional stories and the characters within them might help us better understand our real-world peers. Because stories are about characters and their interactions, understanding stories might help us to exercise our social cognitive abilities. Correlational studies with children and adults, experimental research, and neuropsychological investigations have all helped develop our understanding of how stories relate to social cognition. However, there remain a number of limitations to the current evidence, some puzzling results, and several unanswered questions that should inspire future research. This review traces multiple lines of evidence tying stories to social cognition and raises numerous critical questions for the field.

Keywords

stories, narrative fiction, social cognition, mentalizing, theory of mind

The idea that stories might help us to better understand other people has very early origins (Hakemulder, 2000). Aristotle (330 BCE/1987) wrote in *Poetics* that "man tends most towards representation and learns his first lessons through representation" (p. 4). *Poetics* elucidated the craft of dramatic stories, which Aristotle described as language that represents and imitates life. In psychology, stories are typically defined as representations of temporally coherent events centered around the goals of a protagonist, which follow a formal grammar or schema consisting of several related elements, including a setting, an inciting incident, rising action, a resolution, and a denouement (e.g., Rumelhart, 1975; Trabasso & Van den Broek, 1985). Aristotle's claim is that stories[1] can represent and communicate useful truths about the world, despite the fact that fiction is fabricated and not a fully accurate representation of reality (Oatley, 1999). Richard Gerrig (1993) has argued that understanding stories relies on the same cognitive processes used to understand the real world. Because stories are typically about people, their mental states, and their relationships (Hogan, 2003), social cognition might be one set of processes engaged by narrative (Zunshine, 2006). Social cognition includes inferring the mental states of other people, known as *mentalizing* or *theory of mind* (Carruthers & Smith, 1996), which is the focus of this review. (Related processes, such as empathy, and putatively related behaviors, such as prosociality, are also discussed.)

Because engagement with narrative fiction involves a deeply embodied mental simulation (Zwaan, 2004), and narratives provide abstracted representations of real-world situations and individuals, stories could support "the recording, abstraction, and communication of complex social information in a manner that offers [imagined] personal enactments of experience, rendering it more comprehensible" (Mar & Oatley, 2008, p. 173). These ideas all point to a shared implication: Exposure to stories might help foster an understanding of other people. Intriguingly, this idea contradicts the observation that time spent engaging with narratives cannot be spent engaged in direct social interaction, an idea that motivates the stereotype of the "socially awkward bookworm" (Mar, Oatley, Hirsh, dela Paz, & Peterson, 2006). This possible association between stories and social cognition has been fruitfully investigated with preschool-aged children, a promising population for study thanks to the emergence of social cognitive capacities at a distinct developmental stage.

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Children's Storybooks and Theory of Mind

At around 4 years of age, children acquire the understanding that other people have mental states that might differ from their own; this is known as acquiring a theory of mind (Carruthers & Smith, 1996). If stories help us to understand other people, then we would expect children who are exposed to more stories to develop a theory of mind more rapidly than other children. This appears to be true, with parents who are better at recognizing the names of children's book authors tending to have children who perform better on a battery of theory-of-mind tasks (Mar, Tackett, & Moore, 2010). Importantly, parental ability to recognize the names of adult book authors does not predict child theory-of-mind performance, ruling out parental memory abilities or reading habits in explaining this result. This finding has been replicated in other countries and with different approaches. For example, an Israeli study found that maternal expertise in choosing children's literature predicted better empathy and socioemotional adjustment in children, as rated by their teachers (Aram & Aviram, 2009). Similarly, a Spanish study found that parental reports of child reading predicted children's false-belief reasoning (Adrian, Clemente, Villanueva, & Rieffe, 2005). Because theory of mind and language are closely linked (Milligan, Astington, & Dack, 2007), it is important to account for language abilities in these studies. The theory-of-mind tasks employed here relied on responding to a vignette after successfully demonstrating comprehension of the narrative, ruling out this important confound. Perhaps more importantly, most of these studies also controlled for the child's verbal abilities in their analyses.

But what lies behind this association? Researching the context in which children are exposed to storybooks has proven enlightening. For example, parent-child conversations about mental states during joint reading predicts theory-of-mind development (Adrian et al., 2005), with narrative storybooks eliciting more of such talk (Nyhout & O'Neill, 2013). For children, parental prompting to consider mental states during joint reading might be what promotes socioemotional development.

Developmental research on this topic is mostly correlational, so causal directionality cannot be inferred, and third-variable explanations cannot be ruled out. Alternative explanations include children with better mentalizing ability requesting books more often or parental social ability being tied genetically to a child's social ability and also predicting a greater likelihood of parent-child reading. Future studies that employ a longitudinal intervention or time-lagged panel correlation design may help to clarify the causal direction of these associations.

Adult Reading and Social Cognition

Correlational studies

Although adults already possess a theory of mind, individual differences in mentalizing ability exist, and if narratives help bolster this ability, we would expect to see a correlation between the two. Measuring mentalizing in adults is difficult, however, and most of the studies discussed here relied on a single measure (unless otherwise mentioned): the Reading the Mind in the Eyes Test (RMET; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). The RMET asks people to guess the mental state of a person on the basis of a photograph of that individual's eye region, choosing from among four options. This task has known limitations, including an association with verbal intelligence (Baker, Peterson, Pulos, & Kirkland, 2014) and concerns that it may reflect emotion recognition more than mentalizing (Oakley, Brewer, Bird, & Catmur, 2016). Future work should include a greater variety of mentalizing measures.

As predicted, an empirical study found that lifetime exposure to narrative fiction predicts mentalizing abilities in adults (Mar et al., 2006). Importantly, exposure to expository nonfiction showed no such association. This result has often been replicated, with a meta-analysis averaging the results of 14 such studies on mentalizing and 22 similar studies on empathy confirming that lifetime exposure to narrative fiction predicts both (Mumper & Gerrig, 2017). The average strength of the correlation between narrative fiction and mentalizing ability was .21, at the low end of the middle third of correlations typically observed (Hemphill, 2003). Exposure to nonfiction was also correlated with both mentalizing and empathy, although the association was half as strong. This correlation with nonfiction may result from the shared variance that exists between narrative fiction and expository nonfiction. In studies controlling for this shared variance, only fiction remains a predictor of mentalizing (Mumper & Gerrig, 2017).

Neuropsychological evidence

Neuroscience evidence also supports a link between stories and social cognition. A review of narrative processes based on both brain-damaged patients and neuroimaging studies implicated a set of brain areas associated with mentalizing (Mar, 2004; cf. Mason & Just, 2009). This overlap in neural substrates was later confirmed by quantitative meta-analyses of neuroimaging studies (Ferstl, Neumann, Bogler, & von Cramon,

2008; Mar, 2011). More-focused neuroimaging research has also found shared neural activation for these two processes within the same individuals. For example, Ferstl and von Cramon (2002) demonstrated that one key region in the mentalizing network supports both mental inference and the processing of coherently linked sentences. This study highlights the importance of interpreting any neural overlap cautiously: A single brain region might perform different functions depending on the current context and goals. Another neuroimaging study established a link between the correlational evidence tying lifetime reading to mentalizing and the neural activation observed during reading (Tamir, Bricker, Dodell-Feder, & Mitchell, 2016). Participants who had historically read more narrative fiction activated the mentalizing network to a greater degree when reading passages that contained social content. This greater activation also helped to partially explain the correlation between lifetime reading and mentalizing ability. A separate line of evidence comes from individuals with autism spectrum disorder, whose mentalizing deficits are often accompanied by deficits in narrative processing, consistent with a possible relation between stories and social cognition (Barnes, 2012). These neuroscientific investigations provide some convergent evidence that stories and social cognition are related; however, they constitute only partial evidence when considered alone and are just part of the larger picture.

Experiments

Researchers have also investigated this topic with experimental methods in an attempt to clarify the causal direction of the associations observed in correlational studies. Typically, participants are randomly assigned to read either a short piece of narrative fiction or a control text; they then complete a mentalizing task immediately afterward. Some researchers have reported a boost in mentalizing ability after participants read stories relative to control texts (Kidd & Castano, 2013). However, other researchers have reported mixed findings (Bal & Veltkamp, 2013; Djikic, Oatley, & Moldoveanu, 2013), and direct replications of the most successful experiments have failed to reproduce these results (Panero et al., 2016; Samur, Tops, & Koole, 2018). Experiments that have successfully demonstrated a positive causal influence of stories on social cognition have employed a within-subjects design, in which the same people read both a story and a control text (Black & Barnes, 2015a), or a longitudinal design, in which people read an entire book over a 2-week span (with mentalizing measured using false-belief tasks and a full-face version of the RMET; Pino & Mazza, 2016). These more powerful research designs may be required to detect any direct influence of reading narrative fiction on social cognition within a short span of time, and how long these effects last is not known. If stories influence social cognitive processes as a result of frequent engagement over prolonged periods of time, short-term experimental manipulations may not be well suited for detecting any effect. One exception is if stories place readers into a social-processing mind-set, in which case the adoption of this mind-set might be detectable immediately after reading a text. Some experiments have presented stories with content that explicitly promotes empathy for other people and have demonstrated a causal link to empathic abilities or prosocial behavior (e.g., Johnson, Jasper, Griffin, & Huffman, 2013). However, these texts likely do not resemble most published works, and such designs raise concerns that participants might become aware of the study goals because of the content presented and act accordingly, a problem known as participant reactivity to demand characteristics.

Future Directions

Other narrative media

Although promising research on this topic exists, there remain many outstanding questions and directions for future research. This review has focused primarily on texts, but what about narratives presented in other mediums? In children, exposure to movies shows the same association with theory-of-mind development as exposure to storybooks (Mar et al., 2010). Exposure to children's television, however, exhibits either no such relation (Mar et al., 2010) or a negative association with theory of mind (Rosenqvist, Lahti-Nuuttila, Holdnack, Kemp, & Laasonen, 2016). In adults, however, two experiments established that watching award-winning narrative television results in better mentalizing compared with watching a documentary or nothing at all (Black & Barnes, 2015b). It remains an open question whether some forms of children's television, perhaps shows oriented toward promoting social understanding, might demonstrate similar effects as children's films. Stories also appear within a myriad of other media (e.g., theater, graphic novels, podcasts), and the potential for narrative to promote social cognition in these formats should be investigated. The narrative aspect of video games, for example, has already shown some promise in fostering theory of mind (Bormann & Greitemeyer, 2015).

Genre

Another outstanding question is whether this effect differs by genre. This would mean that some genres are more "mentalistic" and therefore more likely to promote

social cognition, as some researchers have argued (Zunshine, 2006). Although literary fiction has been theorized to be better suited for promoting inferences than popular fiction (Kidd & Castano, 2013), both would appear to be about human psychology and mental states. Moreover, how to best distinguish literary from popular fiction is not obvious.

Early studies conceptualized narrative fiction in a very broad sense, collapsing across many diverse genres. A few studies have begun to examine genre more closely, albeit with mixed results. The experimental studies by Kidd and Castano (2013) found that it was award-winning literary fiction that promoted better mentalizing ability rather than popular fiction, but other experiments did not replicate this finding (Panero et al., 2016; Samur et al., 2018). In a correlational study, lifetime exposure to romance novels emerged as the most robust predictor of mentalizing ability, with suspense/thriller and literary fiction also implicated but with less confidence (Fong, Mullin, & Mar, 2013). However, a different correlational study found just the opposite, with lifetime exposure to literary fiction predicting mentalizing ability and exposure to popular fiction showing no such relation (Kidd & Castano, 2017). Experimentally manipulating the literary quality of a text by altering the incidence of unusual linguistic constructions has shown some promise in demonstrating a causal influence of literary writing on self-reported empathic understanding (Koopman, 2016); this approach should be explored further in other studies. Neuroimaging research has also investigated genre and found that suspenseful segments of a story are more likely to activate social cognitive brain areas compared with nonsuspenseful segments of the same story (Lehne et al., 2015). Future work will hopefully clarify the role of genre by adopting a more nuanced approach to considering different types of text.

Looking forward

In addressing how stories and social cognition relate, different research approaches will bring unique strengths and weaknesses, and so a diversity of methods is needed. Although correlational approaches do not permit causal inferences, they have the advantage of allowing us to study spontaneous and voluntary real-world behavior. Experiments that present a brief text to participants allow for causal inferences when they are well designed but may do a poor job of revealing effects if frequent and prolonged exposure to stories is what promotes social cognition. Longitudinal intervention studies that assign people to read for an extended period seem promising, as do within-subjects designs that better control for individual differences. But for all experiments, especially when explicitly presenting social content, care must be taken to rule out participant reactivity. Another issue is that evidence derived from studying children may not generalize to adults, as distinct processes could underlie similar-looking phenomena. Potential moderators should also be investigated, such as how immersed people become in a narrative (Bal & Veltkamp, 2013; Gerrig, 1993; Green & Brock, 2000). Greater efforts to measure outcomes that might be downstream consequences of improved social cognition, such as altruistic behavior (Barraza, Alexander, Beavin, Terris, & Zak, 2015), would also be welcome. If stories promote social cognition, then story-based interventions might promote perspective taking between different groups (Paluck & Green, 2009) or in special populations who struggle with social cognition (e.g., autism; Tsunemi et al., 2014). Given preliminary evidence, these possibilities hold promising potential, and the future certainly looks bright for research on stories and social cognition.

Recommended Reading

Hakemulder, J. (2000). (See References). A book providing an excellent review of the theoretical background supporting literature's influence on social and moral constructs, while also reporting original empirical research on this topic.

Keen, S. (2007). *Empathy and the novel*. New York, NY: Oxford University Press. A book-length critique of the proposed link between stories and empathy, arguing that changes in real-world empathy for individuals are unlikely and unsupported by the available evidence.

Koopman, E. M. E., & Hakemulder, F. (2015). Effects of literature on empathy and self-reflection: A theoretical-empirical framework. *Journal of Literary Theory*, *9*, 79–111. doi:10.1515/jlt-2015-0005. An essential review article that presents a theoretical model on how literature might influence empathy and self-reflection.

Mar, R. A. (in press). Evaluating whether stories can promote social cognition: Introducing the Social Processes and Content Entrained by Narrative (SPaCEN) framework. *Discourse Processes*. doi: 10.1080/0163853X.2018.1448209. An article introducing a research framework that formalizes the theoretical rationale for how stories might promote social cognition and describing how evidence for this association should be gathered and evaluated.

Willems, R. M., & Jacobs, A. M. (2016). Caring about Dostoyevsky: The untapped potential of studying literature. *Trends in Cognitive Sciences*, *20*, 243–245. doi:10.1016/j.tics.2015.12.009. A call to arms for cognitive scientists and neuroscientists to consider employing literature in order to better understand the mind.

Action Editor

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Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

Note

1. Although I primarily discuss narrative fiction in this article, often in contrast to expository nonfiction, it is the narrative aspect that is hypothesized to be key rather than the fictionality of a story. Narrative nonfiction (e.g., biography) would be expected to produce similar effects as narrative fiction.

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