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Cognition

Explaining the moral of the story

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ABSTRACT

Although storybooks are often used as pedagogical tools for conveying moral lessons to children, the ability to spontaneously extract "the moral" of a story develops relatively late. Instead, children tend to represent stories at a concrete level – one that highlights surface features and understates more abstract themes. Here we examine the role of explanation in 5- and 6-year-old children's developing ability to learn the moral of a story. Two experiments demonstrate that, relative to a control condition, prompts to explain aspects of a story facilitate children's ability to override salient surface features, abstract the underlying moral, and generalize that moral to novel contexts. In some cases, generating an explanation is more effective than being explicitly told the moral of the story, as in a more traditional pedagogical exchange. These findings have implications for moral comprehension, the role of explanation in learning, and the development of abstract reasoning in early childhood.

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1. Introduction

"There once was a boy named Pierre who only would say, 'I don't care!' Read his story, my friend, for you'll find at the end that a suitable moral lies there."
["Pierre: A Cautionary Tale" (Prologue), Maurice Sendak (1962)]

Moral stories have long been thought to improve "moral literacy" and "moral character" in children (Bennett, 1993; Honig, 1987; Kilpatrick, 1992; Lickona, 1991; Nash, 1997; Wynne & Ryan, 1993), and storybooks are often used with the intention to convey moral lessons during childhood. However, the ability to spontaneously extract underlying themes from a story appears to develop quite late; some have proposed that this ability does not truly mature until adolescence (McKenna & Ossoff, 1998; van den Broek, 1997; Williams, 1993). Instead, beginning with Piaget (1952), many researchers have suggested that young children are "context bound," and therefore *unable* to grasp the abstract goal or lesson of a story (Fisch, 2000; van den Broek, 1997; van den Broek, Lynch, Naslund, Ievers-Landis, & Verduin, 2003). In the present paper, we investigate whether prompting young children to explain – a process that has been shown to facilitate learning (Fonseca & Chi, 2011; Lombrozo, 2006, 2012) – can help young children go beyond superficial content and successfully abstract the moral of a story.

1.1. Development of theme comprehension

Despite the popularity of stories with moral lessons in literature for young children, a sizable body of research suggests that children under 10 years of age typically interpret story meaning in ways that deviate from the writer's intent (e.g., Goldman, Reyes, & Varnhagen, 1984; Lehr, 1988; Mares, 2006; Mares & Acosta, 2008; Narvaez, 1998; Narvaez, Bentley, Gleason, & Samuels, 1998; Narvaez, Gleason, Mitchell, & Bentley, 1999; Whitney, Vozzola, & Hofmann, 2005). In particular, when children are asked to generate the moral of a story, they tend to produce a salient story event or repeat a familiar but irrelevant moral. According to the dominant line of thought from this body of work, children fail to represent narratives at a level that highlights abstract generalizations and understates surface content (Goldman et al., 1984; Williams et al., 2002). Although it has been proposed that drawing attention to the underlying structure of a narrative could facilitate children's grasp of the moral and its generalization to novel contexts, interventions taking this approach have been largely unsuccessful, particularly with young children.

To illustrate, consider a study by Narvaez et al. (1999), in which 3rd and 5th graders were asked to identify the moral of a story and to select a new story with the same moral theme. The target story was a brief vignette, in which a character stops for gas, pays, receives too much change, and then returns the extra money. The test vignettes were designed to provide several attractive options: (1) same setting (character stops for gas); (2) same main character; (3) same actions (character pays the bill at a restaurant

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and gets change); or (4) same theme (character returns something that doesn't belong to him [candy]). The most common response was to select the "same action" vignette, suggesting that children were attracted to stories with shared surface content. The authors conclude that at least part of children's difficulty in grasping moral themes is explained by their tendency to be distracted by superficial details. In fact, children in this study did not extract the theme at all until at least 4th grade (10 years of age), with 3rd graders performing at chance. In addition, the 3rd graders seemed surprisingly resistant to training. After 14 weeks of an educational intervention, these children were able to generate morals that had been explicitly discussed during the training, but failed to do so when presented with new material (Williams et al., 2002).

This pattern of results extends beyond storybooks to televised narrative as well. For example, in a study by Mares and Acosta (2008), 5-year-old children watched a television program with a moral theme intended to portray tolerance of social differences. In this program, a disabled character (a dog with three legs) was initially feared, and then eventually accepted. Children who watched this program were asked to select the moral from several provided options and to select another episode that shared the same lesson. Performance was poor on both tasks. Notably, when asked to generate the lesson in an open response, children provided a lesson that was tied to literal story content: "You should be kind to three-legged dogs." The authors conclude that 5-year-olds take televised content at face value, or assume a literal interpretation of narrative.

The abstraction of a theme from a story has also been examined in a related but separate literature examining children's analogical transfer. For example, Brown, Kane, and Echols (1986) assessed transfer in preschool-aged children using a task in which learners were required to notice the common underlying structure of a set of problems in order to succeed. Three- to 5-year-olds were presented with sets of stories that differed in their surface content (e.g., a genie transferring jewels into his lamp and a farmer transferring cherries into his truck), but shared a common problem solution (i.e., transfer objects by rolling them through a hollow tube). The authors examined whether children could transfer the solution from one story to another, and if so, which factors mattered most for success. Children were split into several conditions. In one case, children were prompted to provide the explicit goal structure, recalling the protagonist, the goal, the problem, and the solution. In a second condition, children were prompted to simply recall the events of the story, with no additional guidance. In a third condition, children were given no prompt. Results demonstrated that children prompted to provide the explicit goal structure were best able to draw an analogy between stories. However, when participants' responses were coded, children in the recall condition who *spontaneously* provided the explicit goal structure in their response were just as likely to transfer the solution. It seems that the key factor was whether children achieved a level of representation that highlighted the common goal structure and understated the surface content of the stories, irrespective of the experimental prompt.

Brown et al. (1986) offer an interpretation of these results in terms of children's "depth of representation," which predicted the probability a child would transfer the solution from one story to another, even controlling for memory, age, and the ability to verbalize the solution. The idea that "deeper" processing facilitates memory and problem solving has appeared in a variety of forms (e.g., Craik & Lockhart, 1972), and deeper processing is credited with facilitating retention and transfer in children (Brown, 1975; Murphy & Brown, 1975). However, it is often unclear how to distinguish deep processing from alternatives, except by circular reasoning: the child who performs well is processing at a deeper level, and we know this is the case because she performs well (see also Bransford, 1979). With respect to the goal of extracting a story's lesson, however, we can safely say that more *abstract* reasoning is better: children must appreciate that much of the surface content is incidental to the main lesson that the story's author intends to convey. If this is the case, then children's moral comprehension should benefit from interventions that promote abstract reasoning over attention to idiosyncratic details.

The literature on analogical reasoning provides a further hint about what such an intervention might be: prompting children to *explain* key aspects of the story as it unfolds. Crisafi and Brown (1986) found that asking 2- to 4-year-olds to teach a puppet how to solve a problem improved analogical transfer of the solution to a novel situation. In addition, Brown and Kane (1988, Experiment 7) provided 4-year-old children with three examples of mimicry in the natural world (i.e., caterpillars, rats, and beetles). When children were asked to explain – for example – why a caterpillar would want to look like a snake, and then to explain a second example (e.g., about mimicry in rats), they were more likely to transfer the concept of mimicry to a third example (e.g., about mimicry in beetles). These effects of explanation on analogical problem solving suggest that when it comes to extracting the moral of a narrative story, explanation could have a beneficial effect by facilitating abstraction.

1.2. Explanation and abstraction

Previous research has found that the act of generating explanations can be a powerful mechanism for learning, scaffolding knowledge acquisition and contributing to theory change (Chi, Bassok, Lewis, Reimann, & Glaser, 1989; Chi, de Leeuw, Chiu, & LaVancher, 1994; Fonseca & Chi, 2011; Crowley and Siegler, 1999; Lombrozo, 2006, 2012; Walker, Lombrozo, Legare, & Gopnik, 2014; Wellman & Liu, 2007). Among previous accounts of these effects, several suggest a direct or indirect relationship between explanation and abstraction. At a theoretical level, for example, explanation has been linked to supporting generalization (e.g., Lombrozo & Carey, 2006), which benefits from abstract representations. At a mechanistic level, abstraction could be a consequence of the process by which learners generate explanations. In particular, explanations tend to involve an implicit or explicit appeal to an explanatory generalization that subsumes the instance being explained by relating it to a more general framework (Lombrozo, 2006, 2012; Wellman & Liu, 2007; Williams & Lombrozo, 2010, 2013). In so doing, they may highlight the abstract features of a situation in virtue of which the generalization applies, and downplay idiosyncratic particulars.

Recent evidence additionally suggests that when learners generate explanations, they tend to favor hypotheses that support *good* explanations (Lombrozo, 2016). This introduces a systematic bias in information processing, with consequences for what learners discover, remember, and infer. For example, adults favor explanations that are simple (Lombrozo, 2007) and broad (Read & Marcus-Newhall, 1993), and engaging in explanation can amplify the influence of these preferences: adults who are prompted to explain the category membership of individual items are more likely to discover simple and broad classification rules (Williams & Lombrozo, 2010, 2013; Williams, Lombrozo, & Rehder, 2013). Even preschool-aged children favor some explanations over others: like adults, they prefer explanations that are simple (Bonawitz & Lombrozo, 2012) and broad (Walker, Lombrozo, Williams, Rafferty, & Gopnik, 2016), and they prefer explanations that omit extraneous details (Frazier, Gelman, & Wellman, 2009). As with adults, the influence of simplicity and breadth is exaggerated when children are explicitly prompted to explain (Walker, Bonawitz, & Lombrozo, in press; Walker et al., 2016). Given that simpler and broader explanations also tend to be more abstract, the process