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Improving low-income preschoolers' theory of mind: A training study

Virginia Tompkins *

Department of Psychology, The Ohio State University at Lima, United States

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ABSTRACT

This study examined the efficacy of training theory of mind via storybook interactions focused on characters' mental states (i.e., beliefs and emotions) in a sample of 73 low-income preschoolers, and determined if training transferred to social competence. Children in the experimental group participated in experimenter-led book interactions in which characters' false beliefs and emotions were discussed. Children in the first control group were read the same stories, but without the embedded discussions; children in the second control group were not read books. Children's false belief understanding, emotion understanding, and social competence were assessed at pretest, an immediate posttest, and a delayed posttest two months later. Children in the experimental group outperformed both controls on false belief understanding, but not emotion understanding or social competence, at both posttests.

1. Introduction

The ability to understand ourselves and other people as mental beings who have beliefs, desires, emotions, and intentions, and the understanding of how these mental states motivate behavior, termed theory of mind understanding (Wellman, Cross, & Watson, 2001), is a good predictor of success in school in domains such as social competence (e.g., Cassidy, Werner, Rourke, Zubernis, & Balaraman, 2003; Razza & Blair, 2009; Watson, Nixon, Wilson, & Capage, 1999; Weimer & Guajardo, 2005) and even math and literacy (e.g., Blair & Razza, 2007). Thus, theory of mind is a potentially useful skill to target in preschool. However, the literature on training theory of mind understanding, at least in typically developing children, has focused on training this skill as a means to answer theoretical questions rather than practical ones (e.g., Guajardo & Watson, 2002; Slaughter & Gopnik, 1996), such as whether training one theory of mind task transfers to gains in other theory of mind tasks (e.g., Melot & Angeard, 2003). Low-income children may particularly benefit from training in theory of mind given that they fall behind their middle-income peers in this ability (e.g., Weimer & Guajardo, 2005), and given the current focus of early childhood programs aimed at improving school readiness in this population (e.g., Bierman et al., 2008; O'Connor, Cappella, McCormick, & McClowry, 2014; Raver et al., 2011). The purpose of this study was to improve low-income preschoolers' theory of mind understanding through discussions about story characters' mental states while listening to storybooks, as well as to determine whether this training transfers to social competence.

* Correspondence to: Department of Psychology, The Ohio State University at Lima, Lima, OH 45804, United States.
E-mail address: tompkins.73@osu.edu

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1.1. Theory of mind development

The term theory of mind is often used broadly to refer to all aspects of understanding the mind, including emotions and beliefs (e.g., Ensor & Hughes, 2008), although others separate emotion understanding from false belief understanding (Seidenfeld, Johnson, Cavadel, & Izard, 2014) recognizing that they are related but distinct. This broader term is used throughout this paper only when reporting results of studies that combine false belief and emotion understanding or when discussing aspects of the current study that focused on both emotions and beliefs. However, the more specific terms of false belief understanding and emotion understanding are used where these specific components of theory of mind were examined. False belief understanding, which concerns children's realization that events in the world can be represented correctly or incorrectly in one's mind, reflects a key achievement in children's theory of mind development (Flavell, 2000). In one typical false belief task—the unexpected contents task—the child is asked what is inside a familiar container (e.g., a crayon box) while the box is still closed. The box is opened to reveal unexpected contents (e.g., ribbons). With the box closed again, the child is asked what another person will think is inside. Thus, the child must keep in mind his or her own representation (that there are ribbons inside) as well as another representation (that there are crayons inside). Research on theory of mind in the preschool years has largely focused on false belief understanding as this is an important conceptual change that demonstrates the child's ability to understand representational mental states (Wellman et al., 2001).

Middle-class children typically pass false belief tasks between 4½ and 5 years of age (Wellman et al., 2001), and several researchers have shown that low-income children score lower than middle-income children on false belief understanding (Cicchetti, Rogosch, Maughan, Toth, & Bruce, 2003; Cutting & Dunn, 1999; Holmes, Black, & Miller, 1996; Seidenfeld et al., 2014; Shatz, Diesendruck, Martinez-Beck, & Akar, 2003) even after controlling for age and language (Weimer & Guajardo, 2005). For example, Weimer and Guajardo (2005) found that children attending private preschools performed significantly better than children attending Head Start on unexpected change, unexpected contents, and active deception false belief tasks. Lower performance on false belief tasks is relevant because low-income preschoolers' false belief understanding is related to teacher ratings of social competence (Holmes-Lonergan, 2003; Razza & Blair, 2009; Weimer & Guajardo, 2005). Specifically, these researchers have found that low-income preschoolers with better false belief understanding tend to be rated by teachers as being more compliant and as having fewer internalizing problems, anxious/obsessive behaviors, and immature behaviors.

In terms of developing emotion understanding, children begin to identify others' emotions even when they differ from their own during the preschool years (Denham, 1986; Wellman & Banerjee, 1991). Several researchers have found that preschoolers' false belief understanding is related to emotion understanding in low- and middle-income children (e.g., Cassidy et al., 2003; Choe, Lane, Grabell, & Olson, 2013; Cutting & Dunn, 1999; Harwood & Farrar, 2006; Pears & Moses, 2003) using the affective perspective-taking task (Denham, 1986), which involves labeling basic emotions and identifying emotional reactions in short vignettes. Similar to false belief understanding, researchers have also found that low-income preschoolers may be at a disadvantage in terms of emotion understanding. Denham et al. (2012) found that preschoolers in private childcare centers performed better than Head Start preschoolers on the affective perspective-taking task. Additionally, researchers have found an association between environmental risk (e.g., socioeconomic status) and emotion understanding with more disadvantaged children scoring lower on assessments of emotion understanding (Bennett, Bendersky, & Lewis, 2005; Hughes, Dunn, & White, 1998).

Emotion understanding is also important to social competence. Researchers have found that children with better emotion understanding tend to have better peer relationships and are rated as more socially competent by their teachers (e.g., Denham et al., 2003; Ensor, Spencer, & Hughes, 2011; Schultz, Izard, Ackerman, & Youngstrom, 2001). Emotion understanding in low-income preschoolers also predicts later school adjustment and academic success (e.g., Denham et al., 2012; Shields et al., 2001). Because both false belief and emotion understanding predict children's social competence, which is important for school success (Denham, 2006; Mashburn & Pianta, 2006), both are relevant targets for programs with at-risk children and both are the focus of the current training study.

Note that much of the research aimed at improving emotion understanding and social competence in low-income preschoolers has used the term intervention given that these children are at risk for lower social and academic competence (e.g., Bierman et al., 2008; O'Connor et al., 2014; Raver et al., 2011), whereas research aimed at training false belief understanding in samples not at risk have used the term training (Clements, Rustin, & McCallum, 2000; Hale & Tager-Flusberg, 2003). The current study uses the term training in keeping with the literature on experimental studies aimed at improving false belief understanding through experimenter–child interactions. However, researchers often refer to work aimed at promoting cognitive and social skills in low-income populations as intervention, regardless of whether children show an existing deficit in the targeted skill. This term is used in the current paper only when discussing this broader meaning and is not meant to imply that low-income children have a deficit in theory of mind, but that they may particularly benefit from programs aimed at improving social understanding.

1.2. Training theory of mind

There have been several false belief training studies that have targeted the specific skill to be improved using tasks that were very similar to the posttest assessments; researchers have shown gains in children's performance on these tasks using this approach (e.g., Melot & Angeard, 2003; Slaughter, 1998; Slaughter & Gopnik, 1996). Emotion understanding has