Research Paper

Theory of mind and school achievement: The mediating role of social competence

Serena Lecce[a],[*], Marcella Caputi[b], Adriano Pagnin[a], Robin Banerjee[c]

[a] *University of Pavia, Italy*
[b] *University Vita-Salute San Raffaele, Italy*
[c] *University of Sussex, United Kingdom*

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ABSTRACT

Recent findings have highlighted the importance of children's social understanding – specifically their reasoning about beliefs and emotions – for school achievement. However, little is known about the processes that may account for such a relationship. In this longitudinal study we examined the role of children's social competence (as indexed by peer relationships and social skills), using a multi-informant and multi-indicator approach. We followed 73 children during the transition to primary school, gathering data at three time points: Time 1 (age 5), Time 2 (age 7) and Time 3 (age 8). Structural equation modelling showed that Time 1 social understanding predicted Time 2 social competence, which in turn predicted Time 3 school achievement, independently of verbal ability. Moreover, social competence mediated the relationship between early social understanding and later school achievement. Theoretical and practical implications of these findings are discussed.

1. Introduction

Recent years have seen a dramatic increase in research on children's social understanding, defined as the ability to attribute inner states to oneself and others and to understand the links between these inner states and social behaviour (Wellman, Phillips, & Rodriguez, 2000). This interest is partly due to the fact that individual differences in children's understanding of mental states are clearly pertinent to different aspects of social behaviour, both in typical and atypical populations (e.g., Flavell, 2004; Hughes & Leekam, 2004). The present study takes as its premise the notion that social understanding is multi-faceted, made up of several components and processes. We focused on two key components: belief (making inferences about others' thoughts and beliefs) and emotion understanding (making inferences about emotions and feelings in given social scenarios). The importance of considering these components comes from studies showing that these two domains of social understanding develop concurrently (Hughes, 2011) and independently predict social preference (Fink, Begeer, Hunt, & de Rosnay, 2014).

Existing research has been mainly conducted with preschoolers. However, social understanding is likely to play an important role in children's school adjustment as social relationships are a key aspect of school life (Mashburn & Pianta, 2006). As Dunn (1995, p. 188) pointed out, "Children's adjustment to the world of school, to the judgments of teachers, to the peer culture… may all be linked to some features of their early understanding of others' inner states". Yet, despite these considerations, little research has been conducted to expand the study of social understanding beyond developmental psychology to include an educational perspective.

The paucity of research in this area can be explained by both methodological and theoretical reasons. First of all, investigating the

effects of social understanding on schooling requires a longitudinal design with a reasonable number of children, which is highly labour-intensive and time-consuming. Second, extending research beyond early childhood implies assessing the multiple socio-cognitive skills possessed by school children, such as higher-order reasoning (Grueneisen, Wyman, & Tomasello, 2015; Perner, Kain, & Barchfeld, 2002) and recognition of complex emotions (Golan, Baron-Cohen, & Golan, 2008). In the present paper, we address both these issues, reporting on a longitudinal investigation of the relationship between children's social understanding and school achievement in primary school. In examining such an issue we were particularly interested in testing whether the hypothesized effect of early social understanding on later school achievement is explained, at least in part, by the mediating effect of children's social competence, expressed as the ability to build positive relationships and show social skills.

1.1. Social understanding and school achievement

Researchers are beginning to explore the repercussions of social understanding on school achievement (Wellman, 2016). A number of studies have indeed shown that children with a good level of emotional competence are more likely to develop a positive attitude toward school, to successfully adjust to the world of school and to improve grades and achievement (e.g., Denham, 2006). For example, Izard et al. (2001) showed that emotion knowledge (the ability to interpret and name facial expressions) at age 5 predicted children's school achievements at age 9. More recently, Denham et al. (2012) found that 3- and 4-year-olds' emotion knowledge predicted teacher-reported school success a few months later. Other studies have focused on emotion understanding, defined as the ability to infer others' emotions and to understand their links with social behaviour. Shields et al. (2001) reported emotion understanding as a significant predictor of young children's school adjustment. Another investigation showed that, after accounting for demographic variables, emotion understanding is directly associated with children's performance on a standardized school competence measure (Garner & Waajid, 2008). Finally, where cognitive aspects of social understanding are concerned, Blair & Razza (2007) showed that preschoolers' false-belief performance predicted later letter knowledge, even when individual differences in age, verbal ability, gender and family income were all taken into account.

Thus, even though belief and emotion understanding can be meaningfully differentiated (Cutting & Dunn, 1999; Fink et al., 2014), they both potentially play a role in children's school achievement. This perspective fits with results of McKown, Russo-Ponsaran, Allen, Johnson, and Warren-Khot (2015) showing that social-emotional comprehension of children aged kindergarten through fifth grade was related to reading performances. This is also consistent with theoretical work and empirical evidence showing that belief understanding and emotion understanding, while clearly distinguishable, are intimately related indicators of a broader, overarching social understanding construct (Caputi, Lecce, Pagnin, & Banerjee, 2012; Hughes et al., 2000; Hughes et al., 2014; Lecce and Hughes, 2010).

A crucial next step is to learn more about the developmental processes that connect social understanding with school achievement over time. First of all, new longitudinal evidence is needed to elucidate the timing of the associations during the school years. For example, we need to determine whether early social understanding predicts higher school achievement over a period of time. Furthermore, understanding this developmental pathway in turn depends on having an insight into the explanatory mechanisms that may account for the relation between early social understanding and later school outcomes.

1.2. The mediating role of social competence

One such mechanism concerns children's social competence, expressed as the ability to build positive relationships and to behave effectively in social contexts (Rose-Krasnor, 1997). A growing number of studies show a developmental association between children's social understanding and social competence at school (Slaughter, Imuta, Peterson, & Henry, 2015). With reference to peer relationships, for example, Banerjee and colleagues have demonstrated that individual differences on an advanced measure of social understanding are negatively associated with individual differences in peer rejection (Banerjee & Watling, 2005). They also present evidence for a bidirectional model according to which early peer rejection impairs the acquisition of social understanding, and difficulties in social understanding, in turn, predict increased peer rejection (Banerjee, Watling, & Caputi, 2011). More recently, Caputi et al. (2012) showed a relationship – mediated by improvements in prosocial behaviour – between social understanding in preschool and lower peer rejection and higher peer acceptance two years later in primary school.

This pattern of connections between social understanding and peer relations is likely to reflect systematic variations in how children behave socially (Hughes & Leekam, 2004). Children with more advanced social understanding are indeed found to exhibit a higher frequency of prosocial behaviour (Caputi et al., 2012; Ensor, Spencer, & Hughes, 2011), to adopt socially competent forms of conflict resolutions with siblings (Foote & Holmes-Lonergan, 2003; Randell & Peterson, 2009), and to show greater social competence (Peterson, Slaughter, & Paynter, 2007). Conversely, impaired social understanding has been suggested to be an important contributor to the development of antisocial behaviours and conduct problems (Hughes & Ensor, 2007, 2009; Sharp, 2006, 2008; Sharp, Croudace, & Goodyer, 2007), even if antisocial behaviour may arise for various reasons in different individuals (see Hughes, 2011). Nonetheless, the evidence reviewed above provides a strong basis for expecting children's social understanding to serve as a crucial predictor of the quality of children's social competence in the context of the classroom.

We believe that this connection between social understanding and social competence in turn provides an important key to understanding children's school achievement. A growing body of research shows that peer acceptance and rejection are strong predictors of school readiness and school success (Ryan & Ladd, 2012). In a pioneering investigation on this issue, Ladd, Kochenderfer, & Coleman (1997) reported that children's relationships (friendship, peer victimization, and peer acceptance) significantly contribute to school affect, school liking and school performance during kindergarten and Buhs and colleague showed that