



## Examining the link between preschool social–emotional competence and first grade academic achievement: The role of attention skills

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### ABSTRACT

Recently, research has begun to identify cognitive and social–emotional predictors of early academic success. Yet few studies have examined the mechanisms by which children's social–emotional skills are associated with later academic success. The present study examines the associations between preschool emotion knowledge, kindergarten attention skills, and first grade academic competence in a sample of mostly disadvantaged children. Results indicate that attention during kindergarten is a significant mediator of this association, even after accounting for the effects of maternal education, family income, and children's age, sex, and receptive vocabulary skills. The findings provide further support for the implementation of preventive curricula that focus on both social and emotional development as well as attentional development as one strategy for improving future academic success in young children.

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There has been a dramatic increase in research surrounding factors that influence children's school readiness. As children's academic trajectories during their first few years in school significantly impact later outcomes (Snow, Burns, & Griffin, 1999), policy makers and school administrators alike are interested in how to promote children's early academic competence. Thus, it is important to identify modifiable precursors to academic success and their mediating mechanisms.

Recently, the integration of emotional and cognitive processes has become central to conceptualizations of social and academic success in the early elementary school classroom (Izard, 1991, 2009; Thompson & Raikes, 2007). Blair (2002) has described the interrelation of emotional competence and cognitive competence as central to understanding children's functioning at school entry. Given this increased theoretical focus on the joint contribution of emotion and cognitive skills, this longitudinal study examines how early emotion skills (i.e., emotion knowledge) and cognitive skills (i.e., attention) interact to influence early academic achievement.

### 1. Emotion knowledge, attention skills, and academic success

Children's knowledge and understanding of emotion is an important aspect of social awareness which is one of several skills that reflect social–emotional competence (Collaborative for

Academic, Social, and Emotional Learning; CASEL, 2003). Basic receptive and expressive understanding of emotions is among the first skills to emerge during early childhood. The importance of these competencies for concurrent and longer term social and behavioral adjustment is well established (Denham et al., 2003; Garner, Jones, & Miner, 1994; Howse, Calkins, Anastopoulos, Keane, & Shelton, 2003; Izard et al., 2001; Miller et al., 2005; Mostow, Izard, Fine, & Trentacosta, 2002; National Institute on Child Health and Human Development's Early Child Care Research Network, 2004; Schultz, Izard, Ackerman, & Youngstrom, 2001). In general, these studies provide support for associations between social–emotional competence, broadly defined, and academic success; however, less is known about the contributions of specific social–emotional and cognitive skills to early academic achievement. Here we focus on the role of two specific factors that impact early academic success: early emotion knowledge and early attentional skills. We first review previous research on each domain, and then their interrelations.

#### 1.1. Emotion knowledge and academic competence

Children's knowledge and understanding of emotion is an important core of social awareness within broader social–emotional competence (CASEL, 2003). Basic receptive and expressive understanding of emotions is among the first social–emotional skills to emerge during early childhood. Young children become increasingly adept at labeling emotional expressions from two to four and a half years of age (Denham, 1998; Denham & Couchoud, 1990; Saarni, 1999). Children's accurate

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emotion labeling and understanding of typical responses to emotional situations has been associated with adaptive behavior within peer interactions (Denham, 1986; Miller et al., 2006). These emotionally competent children are rated as more prosocial by their teachers, and more liked by their peers (Arsenio, Cooperman, & Lover, 2000; Denham, 1986; Denham & Couchoud, 1991; Denham, McKinley, Couchoud, & Holt, 1990; Miller et al., 2005; Mostow et al., 2002; Smith, 2001). A meta-analytic synthesis of the literature finds relatively consistent moderate associations between emotion knowledge and social behavior (Trentacosta & Fine, 2010). Given this established association between emotion knowledge and prosocial behavior, it is likely that children with greater understanding of their own and others emotions may also have greater academic success within the socially complex context of elementary school classrooms (Zins, Bloodworth, Weissberg, & Walberg, 2004).

Emotion knowledge may represent an important early skill that fosters effective learning interactions, thereby promoting academic success; however few empirical studies have examined this specific association. In a sample of preschoolers, Garner and Waajid (2008) found that emotion situation knowledge was a concurrent predictor of concept knowledge and language competence, controlling for age, sex, and income level. In addition, Leerkes, Paradise, O'Brien, Calkins, and Lange (2008) examined the latent structure of emotion and cognitive processes in preschool children and found that emotion understanding was a unique, concurrent predictor of academic competence. Izard and colleagues report consistent longitudinal associations between early emotion knowledge and later academic competence in young children even after controlling for other important child factors such as age, verbal ability, and temperament (Izard et al., 2001; Trentacosta & Izard, 2007). These studies provide some evidence for the positive association between emotion knowledge and academic competencies; however several researchers have called for further research in this area (Denham, 2007; Garner & Waajid, 2008).

### 1.2. Attention skills and academic competence

Attention skills are also essential for social–emotional and academic competence (Blair, 2002). This includes the ability to maintain or sustain attention on a particular subject as well as the ability to shift attention from one subject to another. Studies of young children indicate that attention skills, in general, are positively related to both social–emotional competence and academic skills (Eisenberg et al., 1995; McClelland et al., 2007; Rothbart, Posner, & Kieras, 2006; Trentacosta & Izard, 2007; Trentacosta, Izard, Mostow, & Fine, 2006; Wilson, 2003). Considering the tasks required of children in an elementary school classroom (e.g., maintaining attention on repetitive and sometimes boring tasks), it is not surprising that research shows that children with attention disorders are more likely to have language, reading, and math deficits (Faraone, Biederman, Weber, & Russell, 1998; Marshall, Hynd, Handwrk, & Hall, 1997). Also, more general attention problems have been negatively associated with academic achievement (Alexander, Entwisle, & Dauber, 1993; Hinshaw, 1992; Spira & Fischel, 2005). This research suggests that children with better attention skills are more likely to be able to attend to academic tasks and therefore more likely to benefit from these learning opportunities, thus increasing their overall academic success.

### 1.3. Emotion knowledge and attention skills

Few empirical studies have directly examined the association between early emotion knowledge and later attention skills, but differential emotions theory suggests that children with increased emotion knowledge may be better able to use positive emotions

(e.g., interest) in service of tasks that require attention and concentration (Izard, 1991, 2009). Wilson and Gottman (1996) describe attention as the “shuttle” between emotional and cognitive processes and they suggest that the effects of emotional processes on performance are mediated through attention and that attention is a prerequisite for the attainment of cognitive and social skills. Developmental research suggests that basic emotion skills, such as receptive and expressive knowledge, come online prior to more advanced cognitive processes, such as attentional flexibility and shifting, and therefore it seems appropriate to examine how earlier emotion knowledge may influence later attention skills (Blair, 2002).

In one study of primarily white, middle-class, rural children, Trentacosta et al. (2006) reported a positive association between emotion knowledge and teacher-rated attention skills across one school year, after accounting for age, sex, verbal ability, and attention skills at the beginning of the academic year. They reported similar findings in a sample of primarily minority, low-income, urban children where after controlling for age and verbal ability, they found a positive association between emotion skills (i.e., emotion knowledge and emotion regulation) during kindergarten and teacher-rated attention (e.g., ability to pay attention and stay on task) and academic competence (child-assessed and teacher-ratings) during first grade. In this study, teacher-rated attention mediated the relationship between emotion regulation and academic competence but it did not mediate the relationship between emotion knowledge and later academic competence (Trentacosta & Izard, 2007). Additional direct, child-assessed measures of each construct may provide further refinement of this developmental process by more accurately measuring the development of the children's skill levels as opposed to adult reports, which give a more general estimate of children's abilities.

Given the theoretical role of attention in emotional and cognitive processes, it is surprising that few studies have focused on attention as the mediating mechanism linking social–emotional and academic competence. Children with greater emotion knowledge skills are likely to be better able to identify and process emotional cues in their environment, thus facilitating positive social interactions and avoiding distracting, negative interactions. These positive interactions are likely to facilitate their ability to maintain attention to academic tasks. Children who can focus on the material presented by the teacher are more likely to benefit from instruction and attain greater academic skills.

Based on both past research findings and theories of the inter-related nature of emotion and cognition, we hypothesize that in the present study there will be a positive association between preschool emotion knowledge and kindergarten attention skills as well as a positive association between kindergarten attention skills and first grade academic competence. We further hypothesize that the association between preschool emotion knowledge and first grade academic competence will be mediated by kindergarten attention skills.

### 1.4. Other predictors of academic competence

Sociodemographic factors and children's verbal abilities are important to consider in the development of academic skills as well. Numerous studies have shown that young children living in poverty consistently lag behind their more affluent peers in a variety of school readiness skills, including emotional, behavioral, and academic competence (Brooks-Gunn & Duncan, 1997; Janus & Duku, 2007; McLoyd, 1998; Pungello, Kupersmidt, Burchinal, & Patterson, 1996). More general social and family background risks, including minority status and low maternal education, have also been linked to poor academic outcomes in children (Foster, Lambert, Abbott-Shim, McCarty, & Franze, 2005; Gutman, Sameroff, & Cole, 2003;

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