Relations from temperamental approach reactivity and effortful control to academic achievement and peer relations in early elementary school

Sarah K. VanSchyndel a,⁎, Nancy Eisenberg a, Carlos Valiente b, Tracy L. Spinrad b

a Department of Psychology, Arizona State University, PO Box 871104, Tempe, AZ 85287-1104, United States
b T. Denny Sanford School of Social and Family Dynamics, Arizona State University, PO Box 873701, Tempe, AZ 85287-3701, United States

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ABSTRACT

The goal of the current study was to examine relations from temperamental approach reactivity (i.e., impulsivity, frustration, and positive affect) and effortful control (EC; 42 and 54 months) to teachers’ reports of academic achievement and popularity (72 and 84 months). Frustration was positively related to achievement and negatively related to popularity for girls, but unrelated to boys’ outcomes. Interactions suggested that, among children with high EC or emotional approach (frustration or positive emotion), impulsivity positively predicted achievement. Few gender differences in interactions were noted. These results provide insight into the dynamics relations from temperament/personality to children’s academic and social adjustment.

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1. Introduction

Large numbers of young children in the U.S. struggle with attaining basic social and academic competencies, which is troubling given the importance of these skills for their later academic, health, and financial status (Rimm-Kaufman, Pianta, & Cox, 2000; U.S. Department of Education, 2014). Temperamental approach reactivity, comprised of relatively involuntary motivational traits (e.g., impulsivity, positive affect, frustration) that drive an individual to approach and interact with his or her environment, have been examined as predictors of social and academic competence in elementary school (Degnan et al., 2011; Demaray & Jenkins, 2011), albeit less often than temperamental self-regulation (see Eisenberg, Eggum, Sallquist, & Edwards, 2010, and Eisenberg, Valiente, & Eggum, 2010, for reviews). Childhood temperament is hypothesized to drive social and personality development throughout the lifespan (Rothbart & Ahadi, 1994); thus, personality researchers would benefit from examining the correlates of early temperament. The goals of the present study were to examine how aspects of temperamental approach reactivity and effortful control (EC) prior to entry into elementary school singularly and jointly predict children’s social and academic adjustment and if there were gender differences in these relations.

Theorists have often considered dispositional tendencies to approach or avoid social situations as an important distinction within theoretical models of temperament. This distinction is best captured by the temperament constructs of the Behavioral Approach System (BAS) and Behavioral Inhibition System (BIS; Depue & Collins, 1999). However, these dimensions are also present in Thomas and Chess’ classic framework (1977) in the form of approach or withdrawal, as well as Rothbart and Bates’ (2006) model of temperament in the form of Surgency/Extraversion. Although many researchers have examined the social and academic correlates of temperamental inhibition (Kagan, 2012), fewer studies are available regarding the correlates of temperamental approach reactivity. The three broad approach reactivity constructs most commonly noted in the literature are extraversion/surgency (Rothbart, Ahadi, Hershey, & Fisher, 2001), behavioral activation system sensitivity (Depue & Collins, 1999), and exuberance (Putnam & Stifter, 2005). Although some researchers have examined the associations of these constructs to academic and social outcomes, the direction of findings has not always been consistent. For example, these constructs have been associated with better emotion regulation and social integration in young children (Dennis, Hong, & Solomon, 2010; Tarullo, Mliner, & Gunnar, 2011), as well as more externalizing problems (Honnicl & Donnelan, 2012), which are typically associated with poorer social adjustment (Berdan, Keane, & Calkins, 2008). In contrast, Behavioral Activation System sensitivity has been unrelated to social competence or on-task classroom behavior in young children (Blair, 2003), but it has been positively related to academic...
achievement and negatively related to prosocial behavior in adolescents (Slobodskaya, 2007).

As suggested by Rothbart and Bates (2006), such findings may become more consistent by considering interactions between reactive and control systems. EC, defined as “the efficiency of executive attention, including the ability to inhibit a dominant response and/or to activate a subdominant response, to plan, and to detect errors” (Rothbart & Bates, 2006, p. 129), has been a robust and positive predictor of children's academic achievement, peer relations, and adjustment (Eisenberg, Eggum, Sallquist, & Edwards, 2010; Eisenberg et al., 2010). Conceptually, temperament theorists suggest testing interactions between regulatory systems, such as EC, and reactive systems, such as dimensions of approach reactivity, may be important because the ability to regulate one's own behavior, motivation, emotion, and attention may help children channel their reactive tendencies in ways that are appropriate within a given situation. For example, an approach-oriented child may be looked upon unfavorably by his or her teacher if they speak out of turn during a lesson, but the opposite may be true if they are able to wait until they are called upon by their teacher. This idea has been supported by research suggesting that EC protects approach-oriented children from experiencing adverse social outcomes. For example, EC and exuberance interacted to predict peer rejection, such that surgent preschoolers with poorer EC experienced more peer rejection, a relation that was mediated by aggressive behavior (Gunnar, Sebanc, Tout, Donzella, & van Dulmen, 2003).

Moreover, children's exuberance was positively related to externalizing problems only when their regulation of exuberant positive emotion was also low (Rydell, Berlin, & Bohlin, 2003). However, it is unclear if regulation can actually enhance approach-oriented children's social and academic experience; theoretically, these children may be the most likely to become engaged with peers and academic tasks at school, and, if they have the ability to regulate themselves well, they may experience positive social and academic adjustment as a result.

It is also possible that findings regarding broad approach reactivity constructs are mixed because they capture too many subdimensions of trait approach reactivity (i.e. impulsivity, positive affect in response to rewarding situations, and frustration in response to blocked goals/rewards), which may not always cohere together. A particularly unexplored area in this literature is whether there are different patterns of interactions for impulsivity and other dimensions of emotional approach reactivity, such as positive affect or frustration, when predicting academic or social outcomes. For example, children with a combination of high dispositional impulsivity and frustration have been found to exhibit adjustment problems (Eisenberg et al., 2004). It is possible that children with clusters of approach-oriented traits are seen differently by peers and teachers than children who are high on only one aspect of approach orientation; very few researchers have assessed each dimension separately to examine whether or not approach-oriented responses cohere together across different types of rewarding or goal-oriented situations. Thus, it may be important to consider not only how EC interacts with each dimension of approach reactivity, but also how dimensions of approach reactivity interact with each other. By examining the fine-tuned relations of each aspect of approach reactivity (i.e. impulsivity, positive affect, and frustration) to children's peer relations and academic achievement, we may gain a more nuanced understanding of temperamental approach reactivity in early childhood.

1.1. Fine-tuned aspects of approach reactivity

1.1.1. Impulsivity

Impulsivity, sometimes referred to as reactive undercontrol, has been defined as the speed of a behavioral approach response (Eisenberg et al., 2013; Rothbart, Ahadi, & Evans, 2000). In factor analyses of children at 30, 42, and 54 months of age, impulsivity was found to be a separate construct from EC, suggesting that high impulsivity does not necessarily mean the same thing as low regulation in young children (Eisenberg et al., 2013). Demaray and Jenkins (2011) found that impulsivity was indirectly and inversely associated with achievement by way of lower engagement, social skills, motivation, and study skills in elementary school. Although Demaray and Jenkins' study suggests that impulsivity is associated with lower achievement, some researchers have noted mixed findings regarding impulsivity and social outcomes. For example, fourth-grade children who made more errors on a cognitive impulsivity task were more likely to be rated by teachers as moody and disruptive, and they were less likely to be nominated by peers as desirable to play with (Glenwick, 1976). On the other hand, impulsivity was positively related to peers' ratings of likability in kindergarten (Gomes & Livesey, 2008).

It is possible that a moderate level of impulsivity, which might partly reflect spontaneity, is more positively associated with young children's positive peer interactions than are low or high levels of impulsivity. For example, Eisenberg, Spinrad, and Morris (2002) found that moderate impulsivity was associated with resiliency, particularly in 4.5–8-year-old children. Moreover, in a sample of young adolescents, when EC was statistically controlled for, moderate and high levels of impulsivity were positively related to academic achievement; however, when EC was not accounted for, low and moderate levels of impulsivity were associated with high achievement (Valiente, Eisenberg, Spinrad, Thompson, & Kuper, 2013). Thus, impulsivity may exhibit a quadratic relation with social or academic outcomes for younger elementary school-aged children, or this relation (quadratic or linear) may change when EC is statistically controlled for. However, in most relevant research, adults’ ratings of children's impulsivity and EC have been obtained, and they tend to be substantially negatively related to one another (e.g., Valiente et al., 2013). Research in which EC and impulsivity has not been assessed by reports from the same individual is rare and needed to verify these patterns of association.

Impulsivity has also been found to interact with anger or EC to predict children's adjustment and school behavior. For example, Eisenberg et al. (2004) found that the relation between impulsivity and externalizing problems became stronger as teachers' reports of children's dispositional anger increased. Valiente, Swanson, and Eisenberg (2012) found that kindergarteners' observed impulsivity was negatively related to classroom participation and the student–teacher relationships only when EC was low. These studies highlight the importance of considering how impulsivity may interact with EC or other dimensions of approach reactivity when predicting academic or social outcomes.

1.1.2. Frustration

Frustration is considered an approach-oriented emotion because it motivates the individual to interact with the environment in order to overcome the obstacle or delay in obtaining a desirable reward (Carver & Harmon-Jones, 2009). However, most temperamental measures of anger/frustration encompass three closely-related anger constructs: (a) frustration, defined as negative affect arising when access to goals, resources, or desirable objects are perceived to be blocked; (b) anger defined as negative affect that signals retaliatory or reward-seeking behavior; and (c) irritability, defined as aversive sensations in response to stimulation that can precede or follow angry episodes (Deater-Deckard & Wang, 2012). Whereas anger and irritability may tap either temperamental inhibition or approach, depending on the situation in which it was elicited, frustration expressed in response to blocked goals has been found to be associated primarily with the behavioral approach system (Carver & Harmon-Jones, 2009). Thus, our
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