



The role of temperament in children's affective and behavioral responses in achievement situations



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ABSTRACT

Although students' affects and behaviors in achievement situations have been shown to be influenced by their previous learning experiences, less is known about how they relate to students' dispositional characteristics, such as temperament. This study examined to what extent children's temperament is related to their affective and behavioral responses in achievement situations. Teachers rated first-graders' ($n = 153$) temperamental characteristics in the Fall semester. Children's active task avoidance, anxiety, and helplessness were rated in test situations in the Fall and Spring semesters. The results showed that the more easily distracted the children were, the more task avoidance they showed, and the more their task avoidance increased during the first grade. Moreover, children's high level of inhibition was related to high levels of anxiety and helplessness. The findings suggest that characteristics that are related to students' behavioral regulation and inhibition are particularly important for their affective and behavioral responses in achievement situations.

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1. Introduction

When faced with challenging tasks, students differ from each other in their affective and behavioral responses. Some students react to challenges with enthusiasm and by focusing on the task, whereas others become anxious and passive, or actively try to avoid the challenge (e.g., Dweck & Leggett, 1988). Responses such as task avoidance, helplessness, and anxiety are considered maladaptive because they do not promote students' performance and skill development (e.g., Bandura, 1993; Diener & Dweck, 1978; Pekrun, Goetz, Titz, & Perry, 2002). From motivational perspective, achievement-related affects and behaviors can be interpreted in the light of students' previous experiences in learning situations, and how these experiences influence their beliefs in their own competence, their expectations for succeeding in the tasks, and their willingness to invest effort in them (e.g., Bandura, 1993; Dweck & Leggett, 1988). Another way to understand students' affects and behaviors is through the effects of innate and early maturing individual characteristics, such as temperament. Temperamental characteristics can be reflected in the intensity of emotional reactions the situation evokes in the students, and in the students' orientation toward or away from the situation (Ahadi &

Rothbart, 1994; Derryberry & Rothbart, 1997). This study aims to examine to what extent children's temperamental characteristics (distractibility, inhibition, mood, and negative emotionality) contribute to their maladaptive affects and behaviors (task avoidance, helplessness, and anxiety) in achievement situations.

1.1. Achievement-related affects and behaviors

Achievement-related behaviors, such as learned helplessness and active task avoidance, have provoked interest among researchers because these behaviors have proven to be maladaptive in terms of their effect on achievement outcomes (e.g., Aunola, Nurmi, Lerkkanen, & Rasku-Puttonen, 2003; Dweck, 1986; Fyrtén, Nurmi, & Lyytinen, 2006; Nolen-Hoeksema, Girgus, & Seligman, 1986). Although such behaviors are students' attempts to cope with the situational demands and stress in academic settings, they have negative consequences on students' performance. Students showing *helplessness* or passive avoidance in academic settings tend to attribute success to external, unstable, and situation-specific causes (Diener & Dweck, 1978; Nolen-Hoeksema et al., 1986). This maladaptive attributional style leads the students to expect no success, to experience negative affect, and to withdraw effort (Dweck, 1986; Nolen-Hoeksema et al., 1986). Active form of *task avoidance*, on the other hand, is characterized by a low level of effort and an active attempt to avoid the challenge by engaging in

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irrelevant activities. Lowered beliefs in personal competence lead the students to expect nothing but failure, and to engage in task-irrelevant behaviors in order to create an excuse for this failure (self-handicapping; Midgley, Arunkumar, & Urdan, 1996; Turner, Thorpe, & Meyer, 1998).

Anxiety, on the other hand, is by far the most studied emotion in academic settings because of the detrimental effects it may have on students' performance (Pekrun et al., 2002). Feelings of anxiety can be considered as a function of the individual's outcome expectancies, goal appraisals, and beliefs of control: if avoiding a failure in the task is important to the student, but chances for personal control over the outcome are uncertain, anxiety will follow (Pekrun, 2006; Pekrun et al., 2002). Students with low self-efficacy beliefs are more vulnerable to experience achievement anxiety, because believing that something in the situation exceeds their competence or threatens their feelings of self-worth leads them to dwell on these worries instead of concentrating on adaptive functioning (Bandura, 1993; Turner et al., 1998).

1.2. Temperament in the school context

Temperament refers to inherited or early appearing individual differences in behavioral and emotional responses (Thomas & Chess, 1977), visible as reactivity toward environmental stimuli as well as self-regulation in modulating this reactivity (Rothbart, Ahadi, & Evans, 2000). Temperamental characteristics affect the kinds of environments and activities individuals choose to avoid or approach, the kinds of emotional responses the situations evoke in them, and the kinds of reactions and feedback they receive from other people (Ahadi & Rothbart, 1994; Derryberry & Rothbart, 1997; Rothbart & Hwang, 2005). For example, a child prone to reactions of fear and frustration in novel situations is more sensitive to threatening cues in the environment, and is thus more likely to experience negative emotions, to avoid these anxiety-evoking situations, and to seek help and protection from others. Conversely, a child with a strong approach-tendency and high activity level is more likely to experience positive emotions, to seek and receive intense stimulation, and consequently, to view him- or herself as active, efficacious, and independent.

A substantial amount of research has been carried out on the role of temperament in the school context (for reviews, see Keogh, 1989, 2003; Martin, 1989). Temperament has been examined in relation to, for example, students' achievement, student–teacher interactions, problem behavior, and psychosocial functioning at school (e.g., Eisenberg et al., 2009; Nelson, Martin, Hodge, Havill, & Kamphaus, 1999; Valiente, Lemery-Chalfant, & Swanson, 2010; Zhou, Main, & Wang, 2010). For example, studies among kindergartners and elementary school students have found good self-regulation or high effortful control to be positively related to students' self-efficacy (Liew, McTigue, Barrois, & Hughes, 2008), academic competence (Liew et al., 2008; Valiente et al., 2010; Zhou et al., 2010), classroom participation (Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008), school liking (Valiente, Lemery-Chalfant, & Caister, 2007), and work habits (Curby, Rudasill, Edwards, & Pérez-Edgar, 2011). Kindergarten and elementary school students' shyness or behavioral inhibition, on the other hand, has been shown to be negatively related to their academic engagement (Hughes & Coplan, 2010) and achievement (Hughes & Coplan, 2010; Valiente et al., 2010).

Findings concerning the significance of dispositional emotionality in academic functioning are sparse and less consistent (see Valiente et al., 2010; Valiente, Swanson, & Eisenberg, 2012). It has been suggested that high negative emotionality interferes with students' cognitive processes and lowers their motivation and engagement in classroom situations (Brand, Reimer, & Opwis,

2007; Zhou et al., 2010), because intense negative emotions can draw students' attention away from the task to threatening cues in the situation (Pekrun, 2005, 2006). Empirical findings among middle school students have shown that negative emotionality is associated with low levels of academic performance and self-perceived competence (Guerin, Gottfried, Oliver, & Thomas, 1994; Gumora & Arsenio, 2002). Moreover, negative mood or negative emotionality (such as expressions of anger and sadness) is positively related to elementary and middle school students' anxiety and depression (Eisenberg et al., 2009; Gumora & Arsenio, 2002; Nelson et al., 1999). The role of positive emotionality in academic functioning has received hardly any research interest (see Valiente et al., 2012). It is possible that positive emotionality or positive emotions enhance students' functioning by promoting creative thinking and engagement (Valiente et al., 2012), and by contributing to students' interest and effort (Pekrun, 2005, 2006).

Theories on achievement motivation and achievement emotions suggest that students' affective and behavioral responses in achievement situations are influenced by their beliefs, expectations, interests, and goals (e.g., Bandura, 1993; Dweck & Leggett, 1988; Pekrun, 2006). Research on the role of temperament in this process has grown in the past decade (e.g., Chang & Burns, 2005; Elliot & Pekrun, 2007; Elliot & Thrash, 2002; Rothbart & Hwang, 2005), but especially among children in the beginning of their school career, the number of studies on the relationship between students' temperament and their achievement-related affects and behaviors is limited (for exceptions, see Chang & Burns, 2005; Harris, Robinson, Chang, & Burns, 2007; Liew et al., 2008).

The present study focuses on children's distractibility (a composite of high activity, low persistence, and high distractibility), inhibition, mood, and negative emotionality, because characteristics that are related to emotional reactivity and intensity, personal-social flexibility, and the regulation of attention and behavior are generally considered relevant for academic functioning (see Keogh, 2003).

1.3. The present study

The aim of the present study was to examine the associations between children's temperamental characteristics and their achievement-related affective and behavioral responses. The following research questions were addressed: To what extent children's distractibility, inhibition, mood, and negative emotionality in the fall semester of the first grade predict the level of and the subsequent change in their (1) active task avoidance, (2) helplessness, and (3) anxiety? The focus of the present study was on first-grade students, because the beginning of formal schooling is an essential time point for understanding the origins of children's achievement-related affective and behavioral patterns. In the present study, students' performance in reading and math tests was controlled.

We hypothesized that distractibility is positively associated with the level of active task avoidance (Hypothesis 1a), because high distractibility is a sign of a child's low ability to control his or her attention and behavior. Similarly we hypothesized that negative emotionality (or inability to control one's emotional reactions) interferes with a child's ability to stay on task, and is consequently associated with task avoidance (Hypothesis 1b). Moreover, we hypothesized that children's inhibition is a risk factor for their engagement in the situation and is positively associated with the level of helplessness (Hypothesis 2). Finally we hypothesized that both inhibition (Hypothesis 3a) and negative emotionality (Hypothesis 3b) are positively associated with children's level of anxiety, because a disposition toward feeling uneasy in unfamiliar situations and an inability to regulate one's negative emotions are likely to lead to feelings of anxiety in a challenging situation.

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