



# Early temperament and age at school entry predict task avoidance in elementary school



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## ABSTRACT

This study examined the role of temperament, prereading skills, and age at school entry in the development of Finnish children's task avoidance. Teachers rated the task-avoidant behavior of 198 participants in kindergarten and twice in Grades 2 and 3. Parents rated the children's temperament at age 3 and children's prereading skills were measured at age 5. The results showed that, on average, the level of children's task avoidance remained the same from kindergarten to Grade 2 fall, but decreased from Grade 2 fall to Grade 3 spring. A low task avoidance level was predicted by good prereading skills, high effortful control, and high negative affectivity. Low surgency predicted a decrease in task avoidance from kindergarten to Grade 2 fall, whereas high negative affectivity predicted a decrease from Grade 2 fall to Grade 3 spring. Finally, task avoidance of the oldest children in the classrooms decreased more from kindergarten to Grade 2 fall, whereas younger children's task avoidance decreased particularly from Grade 2 fall onward.

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## 1. Introduction

Students' achievement behaviors in learning situations influence their academic performance and skill development (e.g., Aunola, Nurmi, Niemi, Lerkkanen, & Rasku-Puttonen, 2002; Fyrtén, Nurmi, & Lyytinen, 2006). One form of maladaptive achievement behavior is *task avoidance* evidenced in a low level of effort in learning tasks and/or task-irrelevant activities, such as fooling around in the classroom and disturbing other students (Onatsu-Arivilommi & Nurmi, 2000). Task avoidance has been found to have detrimental effects on the development of both reading and math skills (e.g., Aunola et al., 2002; Eklund, Torppa, & Lyytinen, 2013; Hirvonen, Tolvanen, Aunola, & Nurmi, 2012). Because of the dysfunctional role that task avoidance plays in learning situations, it is important to understand the origins of this type of behavior. In the present study we examined Finnish children's temperament, prereading skills, and age at school entry as predictors of children's task avoidance in kindergarten and the early grades of elementary school.

The beginning of formal schooling is a critical time for the formation of children's academic self-perceptions and school motivation (Aunola, Nurmi, Lerkkanen, & Rasku-Puttonen, 2003; Heckhausen & Heckhausen, 2008), because it is at school that children receive, for the first time, systematic feedback of their progress and begin to compare their achievement with that of others. The foundation for achievement-related behaviors is laid in children's early experiences

and related feedback: previous levels of children's task-focused or task-avoidant behaviors from kindergarten age onward have been found to contribute to their behavior in subsequent situations (e.g., Aunola et al., 2003; Onatsu-Arivilommi & Nurmi, 2000). Previous studies have not, however, considered whether there are different phases in the development of children's behavioral patterns. For example, school entry and other school transitions may lead to temporary increases in task avoidance, because children need to face a new learning environment and more challenging learning tasks. In contrast, task avoidance may decrease later on once the children have familiarized themselves with the new learning environment. The development of achievement-related behaviors may also follow different paths for different groups of children depending on what kind of learning experiences and possible difficulties they meet in their learning (see Poskiparta, Niemi, Lepola, Ahtola, and Laine (2003)).

The adoption of adaptive and maladaptive patterns of behavior (such as task avoidance) in learning situations can be explained from a motivational perspective. This perspective suggests that students' perceptions of their own ability affect their expectations in a particular task and further influence their motivation and effort expenditure in the task (e.g., Bandura, 1993; Wigfield & Eccles, 2000). Studies have shown that children's good performance in reading or math at school age or already in preliterate tasks in kindergarten can support their task-focused behaviors in school, whereas difficulties in learning or weaker preskills can later lead to increased levels of task-avoidant behaviors (e.g., Fyrtén et al., 2006; Hirvonen et al., 2012; Onatsu-Arivilommi & Nurmi, 2000). After repeated negative learning experiences, engaging in task-avoidant activities can be seen as a

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self-handicapping strategy in order to create an excuse for another failure the child is fearing to face (Jones & Berglas, 1978), or as a way to decrease anxiety in a learning situation (Miller, 1987).

During the past decades, there has been a growing interest in the role of temperament and personality in students' achievement-related motivation and behaviors (e.g., Bjørnebekk & Diseth, 2010; Elliot & Thrash, 2002; Rothbart & Hwang, 2005). The balance between approach versus avoidance motives, on the one hand, and between reactivity versus self-regulation, on the other hand, is in the focus of both theories of motivational systems and theories of temperament and personality (see Ahadi and Rothbart (1994); Derryberry and Rothbart (1997); Elliot and Thrash (2002, 2010)). Both research traditions have also used concepts such as task orientation, task-related behavior, on-task behavior, and persistence. Elliot and Thrash (2002, 2010) have argued that the neurobiological, affective, and motivational aspects of personality converge into the construct of approach/avoidance temperament. Approach temperament (containing extraversion, positive emotionality, and behavioral activation system) is defined as a neurobiological sensitivity toward positive or desirable stimuli, directing individuals' attentional, affective, and behavioral responses toward such stimuli. By contrast, avoidance temperament (consisting of neuroticism, negative emotionality, and behavioral inhibition system) is defined as an analogous sensitivity toward negative or undesirable stimuli, resulting in individuals' attentional, affective, and behavioral responses away from such stimuli. It has been further suggested that individuals' achievement motivation, for example the pursuit of approach and avoidance goals, is directed by these neurobiological sensitivities toward either positive and desirable or negative and undesirable stimuli, respectively (Elliot & Thrash, 2002, 2010; see also Bjørnebekk and Diseth (2010)). Avoidance orientation in learning situations would thus be instigated by a motive to avoid negative outcomes, such as looking incompetent to others or failing to understand the course materials.

The present study applies the theoretical framework of Rothbart and colleagues (Derryberry & Rothbart, 1997; Rothbart, Ahadi, Hershey, & Fisher, 2001), which defines temperament as individual differences in emotional and behavioral reactivity as well as differences in the self-regulation of this reactivity (Henderson & Wachs, 2007; Rothbart, Ahadi, & Evans, 2000). These differences are constitutional, genetically influenced and visible soon after birth, but temperament also develops over time as a result of maturation and socialization processes and individuals' experiences in different environments (Henderson & Wachs, 2007; Rothbart et al., 2001). Rothbart and her colleagues (Derryberry & Rothbart, 1997; Rothbart et al., 2001) have identified three dimensions of temperament: effortful control, negative affectivity, and surgency/extraversion. The self-regulative aspect of temperament, *effortful control*, refers to the ability to willfully suppress a dominant response in order to perform a subdominant response (Posner & Rothbart, 2000). Individuals with high effortful control have a high ability to direct, shift, and maintain attention and to control or inhibit one's impulses (e.g., Henderson & Wachs, 2007; Rothbart et al., 2001). At kindergarten and elementary school age, high effortful control has been found to be positively related to, for example, students' academic self-efficacy (Liew, McTigue, Barrois, & Hughes, 2008), academic competence (Valiente, Lemery-Chalfant, & Swanson, 2010; Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008; Zhou, Main, & Wang, 2010), school liking (Valiente, Swanson, & Lemery-Chalfant, 2012), and classroom participation (Valiente et al., 2008, 2012). *Negative affectivity* as a temperamental facet refers to individual differences in the threshold, intensity, and recovery of negative emotions such as anger, frustration, fear, discomfort, and sadness (Rothbart et al., 2000, 2001). Individuals high in negative affectivity are sensitive to negative cues in the environment and prone to express and dwell on intense negative feelings, for example if their needs, hopes, or expectations are not met. Among kindergarten and elementary school students, these characteristics have been found to be associated with negative

outcomes, such as low classroom participation and school performance, and high externalizing and internalizing problem behavior (e.g., Eisenberg et al., 2009; Valiente et al., 2010, 2012; Zhou et al., 2010). Finally, *surgency/extraversion* is characterized by impulsivity, a high activity level, high-intensity pleasure, and a lack of shyness (Rothbart et al., 2000, 2001). Individuals high in extraversion are active and rapid in their responses, seek intense stimuli, do not mind taking risks, and are comfortable with new people and new situations. High impulsivity has been found to relate to children's externalizing problems (Eisenberg et al., 2009) and low classroom participation and school liking (Valiente et al., 2012), whereas behavioral inhibition (or shyness) contributes negatively to academic achievement (Valiente et al., 2010) and school engagement (Hughes & Coplan, 2010). Temperamental characteristics may also work in interaction. For example, effortful control has been suggested to play a moderating role in the relationship between negative affect and socio-emotional or cognitive functioning: Children's high negative affectivity has been shown to be related to high externalizing problems (Moran, Lengua, & Zalewski, 2013) and attentional bias toward threat (Lonigan & Vasey, 2009), but only when accompanied by low effortful control. On the other hand, a study of Valiente et al. (2010) suggested that at low levels of negative affect, children with high effortful control performed academically better than children with low effortful control, whereas at high levels of negative affect, all children showed similar academic achievement regardless of their effortful control.

Although the role of temperament in the school context has been previously studied from several aspects and found to play a significant role, for example, in students' academic achievement (e.g., Valiente et al., 2010; Zhou et al., 2010), and internalizing and externalizing problem behavior in school (e.g., Eisenberg et al., 2009; Zhou et al., 2010), there are a limited number of studies on the predictive links of temperament to the development of achievement behaviors, such as task-avoidant behavior, during the early school years. Cross-sectional studies have reported positive associations between classroom participation and effortful control (Valiente et al., 2008, 2012), and negative associations between classroom engagement and impulsivity, anger, and shyness (Hughes & Coplan, 2010; Valiente et al., 2012). Temperament explains students' classroom behaviors because individual differences in temperament affect the way students perceive and react to learning situations and learning tasks, the things they orient their attention to, and their ability to plan, initiate, and perform actions that are relevant for task completion (cf. Rothbart and Hwang (2005)). However, previous studies have not considered whether temperament also contributes to changes in students' achievement behaviors across time as a result of increasing number of learning experiences the students have gained in different situations, and because of individual differences in how the students respond and adapt to changes in their learning environment, for example during school transitions. As an exception, the recent study of Hirvonen, Aunola, Alatalu, Viljaranta, and Nurmi (2013) examined the contribution of teacher-rated temperament to changes in children's teacher-rated achievement behaviors during Grade 1 of elementary school. The findings showed that distractibility was related to a high level of task avoidance and an increase of task avoidance during the first grade, whereas behavioral inhibition was associated with high anxiety and helpless behavior but not with changes in them. Helpless behavior was characterized as a passive form of avoidance (i.e., giving up and withdrawing), whereas task avoidance can be described as an attempt to avoid tasks by actively engaging in task-irrelevant activities.

In addition to being influenced by their previous learning experiences and temperamental characteristics, children's behavior in learning situations can be affected by various cognitive factors. One of such factors is child's cognitive readiness in relation to language learning and reading acquisition. For example, familial risk of dyslexia and low early cognitive skills increase the probability of reading difficulties (Eklund et al., 2013; Puolakanaho et al., 2007). However, task-focused

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