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General introduction

Self-regulation and academic performance

Self-regulation plays an important role in the development of children's social and academic competence (Blair & Peters, 2003). Although there is a variety of definitions for the construct, it generally refers to the capacity to control and manage one's attention, thoughts, emotions, and behaviors for goal-directed actions (McClelland & Cameron, 2011). Self-regulatory capacities help one to sustain a positive sense of self, maintain good social interactions and to succeed at school or work (Blair & Diamond, 2008). Executive function that forms the cognitive basis of self-regulation (i.e., attention, memory skills, planning skills) has been found to make the process of learning more efficient, resulting in larger gains in reading and math development (Blair, & Razza, 2007; Welsh Nix, Blair, Bierman, & Nelson, 2010). Likewise, children who are able to regulate their motivation and engagement in classroom contexts have more positive relationships with teachers and peers, which increases school liking and commitment (Swanson, Valiente, & Lemery-Chalfant, 2012; Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008). In the last decade, empirical evidence supporting the link between children's self-regulation and academic achievement has increased substantially (e.g., Best, Miller, & Naglieri, 2011; Bull & Scerif, 2001; McClelland et al., 2007), however, there are few studies focusing on this relation in ethnic minority children (e.g., McClelland, & Wanless, 2012; Welsh et al., 2010), who are considered to be academically at-risk (Andriessen & Phalet, 2002; Magnuson & Duncan, 2006). The current dissertation aims to provide more insight into the association between self-regulation and academic performance in Turkish minority children in the Netherlands.

Cognitive self-regulation

Traditionally, self-regulation has been studied either from a cognitive or behavioral/temperamental approach (Zhou, Chen, & Main, 2011). The cognitive approach to self-regulation focuses on executive function (EF) or cognitive control, indicating a set of higher-order, top-down cognitive processes needed for planning, problem-solving and goal-directed behavior (Carlson, 2003). For preschoolers, a unitary, single EF construct has been proposed due to the fact that the EF components between the ages two and six years are not yet clearly differentiated (Garon, Bryson, & Smith, 2008; Wiebe, Espy, & Charak, 2008; Wiebe et al., 2011). For school-age children and adolescents on the other hand, different theoretical conceptualizations have been proposed. The multiple-components model has been most widely used (Davidson, Amso, Anderson, & Diamond, 2006; Huizinga, Dolan, & Van der Molen, 2006; Lehto, Juujarvi, Kooistra, & Pulkkinen, 2003; Miyake et al., 2000; Van der Sluis, De Jong, & Van der Leij, 2007). According to this framework, the EF consists of three related but distinct components, which are inhibition of dominant or prepotent responses,

updating and monitoring of working memory representations, and shifting between mental tasks (i.e., cognitive flexibility).

Instruments assessing executive function are mostly performance-based tasks. For instance, participants are asked to perform the opposite of a dominant response (e.g., naming the word “red” printed in blue ink on the Stroop task), to hold and manipulate information in a purposeful way (e.g., to repeat digits in the opposite order on a backward digit span task), and to take a new perspective by switching a previously learned mindset to a new one in the face of changing conditions (e.g., to sort cards according to different properties of objects such as color, shape or number on a card sorting task). Performance on inhibition and working memory tasks in particular consistently relates to performance in math and reading (Blair & Razza, 2007; Bull & Scerif, 2001; St. Clair-Thompson & Gathercole, 2006). Cognitive flexibility, on the other hand, has not been consistently linked to academic performance (Espy et al., 2004; Van der Sluis et al., 2007). Therefore, a systematic investigation regarding the association between cognitive flexibility (interchangeably used with shifting or flexible thinking in the current dissertation) and academic performance is needed.

Behavioral self-regulation

The behavioral or temperamental approach to self-regulation focuses on effortful control, which is defined as the capacity to control approach and withdrawal behavioral tendencies via attentional and inhibitory control (Rothbart & Bates, 2006). The construct is mostly assessed by temperament questionnaires filled out by parents or teachers (e.g., Children’s Behavior Questionnaire [CBQ], Putnam & Rothbart, 2006; Early Adolescent Temperament Questionnaire [EATQ], Capaldi & Rothbart, 1992) or behavioral measures of delay of gratification (Kochanska, Murray, & Harlan, 2000). There are some studies showing that adult reports and behavioral measures of effortful control are related to children’s school success (e.g., Blair & Razza, 2007; Valiente, Lemery-Chalfant, & Castro, 2007; Valiente et al., 2008). It has been argued that children with high effortful control are more able to sustain their motivation and attention for goal-directed learning, which promotes academic achievement (Meece, Anderman, & Anderman, 2006). A recent study revealed that the association between effortful control and academic achievement is fully mediated by children’s social competence, which refers to a set of skills needed to adjust to social standards, suppress inappropriate behavior and maintain positive interactions with friends in elementary school years (Valiente et al., 2011). In addition, early effortful control predicts later self-efficacy (Liew, McTigue, Barrois, & Hughes, 2008), which is defined as an individual’s beliefs and perceptions of their own competence to achieve a goal (Bandura, 1977). Self-efficacy is reciprocally related to academic achievement (Marsh, Trautwein, Ludtke, Koller, & Baumert, 2005) as well as to motivation, and persistence (Bandura, 1977). Overall, the findings highlight the importance

of effortful control for psychosocial well-being and the necessity of taking psychosocial competence into account in examining the links between self-regulatory capacities and school success.

Self-regulation across development

Self-regulatory capacities show a gradual development from infancy (Bernier, Carlson & Whipple, 2010) into adolescence (Crone, 2009), and the major gains occur in the preschool years (Wiebe, Espy, & Charak, 2008; Wiebe et al., 2011). By the age of five, children are able to perform complex problem solving tasks (e.g., “If it is the color game, put the red square here; but if it is the shape game, put the red square there.”) that require cognitive control (Best & Miller, 2010; Müller, Liebermann, Frye, & Zelazo, 2008). The maturation of the prefrontal cortex, which is the brain region responsible for self-control, is highly dependent on social experience (Hughes, 2011). In other words, starting from the early years of life, self-regulatory capacities shape how individuals function in daily life, but they are also shaped by what they experience. There is growing evidence that the development of self-regulatory capacities is influenced by parenting practices (Conway & Stifter, 2012; Dilworth-Bart, Poehlmann, Hilgendorf, Miller, & Lambert, 2010), qualities of the home environment and economic resources (Noble, Farah, & McCandliss, 2006; Noble, McCandliss, & Farah, 2007; Sarsour et al., 2011), and cultural values (Lewis et al., 2009). Likewise, the transition to formal schooling, which is a critical developmental milestone for cognitive development, shapes the unfolding of children’s executive function (Hughes, Ensor, Wilson, & Graham, 2010). In this period, children are exposed to new rules and expectations that are substantially different from those at home and kindergarten. The transition to formal education is also characterized by changes in context and content of learning. There are large individual differences in self-regulatory capacities when children start elementary school. Some argued that children who are less equipped may catch up with their more equipped peers in cognitive control across the school transition (Hughes et al., 2010). In this regard, the school transition seems to be a critical period of life as it may help children to improve their self-regulatory capacities, which in turn affect their long-term academic trajectories.

Self-regulation in ethnic minority children

As a group ethnic minority children grow up in a different sociocultural context compared to majority middle class children. They are exposed to limited socioeconomic resources, acculturative challenges, and socially and psychologically segregated living conditions even if social mobility is possible, which put them at risk for a number of cognitive, emotional and educational outcomes (Garcia Coll et al., 1996). Developmental processes cannot be considered independent from the dynamic interaction between the child and the socioeconomic

context in which he grows up (Raver, 2004). Examining self-regulation in children growing up under conditions of risk is critical for understanding adaptive and maladaptive functioning (Lengua, Bush, Long, Kovacs, & Trancik, 2008).

In the current dissertation, the two empirical studies were conducted in Turkish ethnic minority children in the Netherlands. The empirical data presented in these studies are drawn from the Dutch part of the SIMCUR (Social Integration of Migrant Children: Uncovering Family and School Factors Promoting Resilience) project that was carried out in three European countries; the Netherlands, Germany and Norway. The project uses a longitudinal two-cohort design with three waves: before, during and after the transition to primary or secondary school. It is also important to note the historical background of migrant children and their families. In the 1960s and 1970s, Turkish guest-workers came to Europe from the rural areas of the lowest socioeconomic regions of Turkey to fill the shortages of the labor market temporarily. Although they were expected to return to Turkey within a couple of years, most of them decided to bring their families to the host country and settle down permanently (Yaman, 2009). Eventually, the Turkish became the largest ethnic minority group in the Netherlands, and their population is still growing with second and third generation children (Distelbrink & Hooghiemstra, 2005). It is known that first and second generation immigrants are overrepresented in lower socioeconomic classes (Planbureau, 2009), they experience acculturative stress, have limited contact with members of the host society, prefer to marry within their own ethnic group and maintain their own ethnic language (Crul & Doornik, 2003; Planbureau, 2009, 2011).

Aim and outline of the dissertation

The general aim of the studies presented in this dissertation is to provide more insight into the association between self-regulation and academic outcomes, with special attention to these issues in ethnic minority children. Following a systematic meta-analysis on the association between cognitive self-regulation and academic achievement regardless of ethnic group, two empirical studies focus on self-regulation and aspects of education in ethnic minority children specifically, examining self-regulatory capacities in relation to educational attainment, and the relation between the transition to primary school and the development of self-regulation.

In Chapter 2, children's cognitive flexibility is examined in relation to their performance in math and reading in two meta-analyses. In Chapter 3, two different aspects of self-regulation, executive function and effortful control are examined in relation to educational attainment in secondary school tracks in Turkish minority preadolescents. The main focus of Chapter 4 is the longitudinal changes of speed and accuracy in cognitive flexibility performance in Turkish minority kindergarteners before and after the transition to formal education in the Netherlands. Thus, Chapters 2 and 4 exclusively focus on a particular component of

cognitive self-regulation (i.e., executive function): flexible thinking. In chapter 3, a broader perspective on the construct of self-regulation is employed by examining both cognitive and behavioral indicators. Finally, Chapter 5 presents a general discussion of the main findings reported in this dissertation. In addition, limitations, theoretical and practical implications and suggestions for further research are addressed in this chapter.

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