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Self-regulation in ethnic minority children : associations with academic performance and the transition to formal schooling

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General discussion

The current dissertation provides evidence for the important role of self-regulation in school performance and for the role of the transition to formal schooling in shaping the development of higher-order cognitive processes that contribute to self-regulation. The meta-analytic findings in Chapter 2 showed that flexible thinking, which is an important contributor to cognitive self-regulation (i.e., executive function), is positively and substantially related to math and reading performance. The results in Chapter 3 demonstrated that behavioral self-regulation (i.e., effortful control) is related to educational attainment with respect to secondary school tracks via self-efficacy in Turkish minority preadolescents. In Chapter 4, it was found that Turkish minority kindergarteners show differential gains in flexible thinking during the transition to the first year of formal schooling. The findings will be discussed in greater detail below.

Self-regulation and academic performance

In Chapter 2, associations between cognitive flexibility and academic outcomes were examined in a meta-analytic study. Cognitive flexibility was significantly and positively related to math and reading performance, indicating that children with a higher capacity to switch a conceptual representation (i.e., goals, rules or strategies for problem solving) to a different one show better performance in both math and reading. It has been suggested that cognitive flexibility facilitates math performance by helping children to switch between different arithmetical strategies (Agostino et al., 2010; Bull, Espy, & Wiebe, 2008; Mayes, Calhoun, Bixler, & Zimmerman, 2009; Van der Sluis, De Jong, & Van der Leij, 2007), whereas reading has been considered as a crystallized skill requiring automatic letter and phoneme identification (Blair & Razza, 2007), thus leaving no clear explanation for a link with flexible thinking. We found that the combined effect sizes of the associations of flexibility with math and reading were quite similar, indicating a domain-general contribution to academic achievement.

Our findings also showed a substantial association between math and reading performance, supporting the notion that these two academic domains have common underlying mechanisms. Specifically, the sequence of skill acquisition is the same in both domains: children learn to solve arithmetical tasks and read texts by effortful procedural strategies in the beginning, and with practice and experience, these strategies turn to automatic retrieval of information (e.g., word recognition or arithmetical facts) with high levels of accuracy and speed (Kulak, 1993). In line with this, a meta-analytic study showed that deficits in working memory and problem solving might be common processes underlying math and reading disabilities (Swanson, Jerman, & Zheng, 2009). Thus, previous findings support the assumption that math and reading performance share some variance that is accounted for by cognitive processes that are required both for encoding and retrieving information and

strategies. We did find some evidence that cognitive flexibility may be one of the higher-order abilities contributing to the performance in both domains.

Although cognitive flexibility tasks show a great deal of variety in content and complexity, all of them have a similar requirement: children have to use a particular approach to respond correctly, then the rule is changed, so they have to adopt an alternative approach. In this regard, they use ‘if-then’ rule structures, which enables them to reflect upon the rule pairs (Jacques & Zelazo, 2005). The better children conceptually represent the rules, the easier they can switch between them, which is also required in academic tasks such as math assignments in which children need to switch from one arithmetic operation (e.g., addition) to another (e.g., subtraction). Flexible thinking may help children to integrate different sources of information, retrieve alternative learning strategies and sometimes switch attention between different components of an integrated whole (e.g., between grammar and semantic parts of a sentence), which in turn may promote academic performance.

In Chapter 3, the relation between self-regulation and educational attainment with respect to secondary school tracks was examined in Turkish minority preadolescents. Self-regulation is a multidimensional construct involving cognitive as well as behavioral (temperament-based) aspects (Liew, 2012). Although cognitive and behavioral self-regulatory capacities have some commonality (e.g., attentional and inhibitory control), they are distinct processes (Zhou, Chen, & Main, 2012). In this dissertation, computerized executive function tasks, assessing cognitive self-regulation and parent ratings of effortful control assessing behavioral self-regulation were used. Our findings suggest that behavioral self-regulation was related to educational attainment via self-efficacy, suggesting that effortful control provides children with self-confidence regarding their academic abilities, which in turn facilitates academic performance (Marsh, Trautwein, Ludtke, Koller, & Baumert, 2005). Temperamental characteristics such as persistence, motivation and freedom from distractibility may let them receive positive feedback from parents and teachers (Silva et al., 2011), which increases their sense of competence (Blair & Diamond, 2008). Through this positive self-image, they may feel less threatened in cognitively challenging learning situations, and perform better in academic tasks, which may enable them start a higher level in secondary school. Given that the results in Chapter 3 are based on ethnic minority preadolescents, who were found to be more anxious and withdrawn than their Dutch peers (Murad, Joung, Van Lenthe, Bengi-Arslan, & Crijnen, 2003), intervention programs focusing on behavioral self-regulation may not only be helpful for their academic trajectories but also for their psychological well-being, which are critical predictors of long-term quality of life (Van Oort et al., 2006).

Contrary to the meta-analytic evidence in Chapter 2, the findings in Chapter 3 did not support a link between executive function (cognitive flexibility and working memory), and educational attainment with respect to secondary school tracks. A possible explanation for this lack of convergence might be that performance on complex executive function tasks

require a cognitively demanding sequence of actions such as planning, monitoring and problem solving, which are important for academic performance in middle childhood (Best, Miller, & Naglieri, 2011). The EF tasks used in Chapter 3 may not be as demanding as traditionally used complex EF tasks and therefore may not have tapped into the domain-general skills that children need to achieve a high secondary educational track. The cognitive flexibility measure used in Chapter 3 for instance is a version of the task switching paradigm, which requires switching between two simple tasks (pressing on the same side as the heart and pressing on the opposite side as the flower), therefore it does not require as much in terms of problem solving skills compared to complex shifting measures such as the Wisconsin Card Sorting Test (Huizinga & Van der Molen, 2011). It is also likely that the contribution of Dutch proficiency to educational attainment was substantial which might have overshadowed the role of executive function. Using multiple tasks assessing the same EF skills (Müller, Liebermann, Frye, & Zelazo, 2008), controlling for ‘nonexecutive demands’ of these tasks (Van der Sluis et al., 2007), and including an ethnic majority, monolingual sample would enable us to examine whether executive function would contribute more to achievement.

In addition, the findings in Chapter 3 showed that Dutch vocabulary was positively related not only to educational attainment, but also to self-efficacy; indicating that preadolescents with better verbal ability had higher levels of academic achievement and more positive beliefs about their capabilities. This finding is particularly meaningful given that our study consisted of an ethnic minority sample, for whom host language difficulties have been reported as an important reason for educational disadvantage (Morrison, Bachman, & Connor, 2005; Oller & Eilers, 2002). Specifically, there is some evidence that Turkish minority children lag behind their native Dutch peers in the host language at the beginning of formal education (Scheele, Leseman, & Mayo, 2010). In the Netherlands, after 1980s, Dutch government policies emphasized the monolingual education in schools (Extra & Yağmur, 2010) to reinforce the sociocultural integration of immigrants (Driessen, 2000). Compensatory community-based programs (i.e., Pre- and Early Primary School Education, VVE) were designed to improve linguistic development of low income, ethnic minority children, in line with Head Start programs in the U.S. (Leseman, 2002). Some researchers investigated whether minority children’s verbal competence can be improved by training parents’ communication skills with their children at the kindergarten age through a long-term, home-based and structured intervention (Leseman & Van Tuijl, 2001). The intervention did not result in gains in children’s Dutch vocabulary probably due to the fact that the mothers chose to administer the curriculum in Turkish. Nevertheless, it improved children’s cognitive and pre-academic skills, which are important for their later achievement. Thus, what parents provide children in dialogue mattered for their cognitive development, however the gains in the ethnic language did not transfer to the host language (Cummins, 1991). There is accumulating evidence that multilingual children perform better in executive function tasks,

particularly in those requiring conflict resolution and cognitive flexibility, than monolingual children when they are matched with respect to family background characteristics (Bialystok, 1999; Bialystok, 2011; Bialystok & Martin, 2004). Although multilingualism has been found to lead to low proficiency in both languages, it might facilitate cognitive development in children (Bialystok, 2009), which in turn predicts academic achievement. Based on this evidence, it may be suggested that compensatory activities fostering children's ethnic *and* host language skills might be helpful for ethnic minority children's overall language proficiency, their academic achievement and self-efficacy.

Self-regulation and intelligence as predictors of academic outcomes

It is important to consider to what extent self-regulation overlaps with intelligence as both of the constructs are considered to be crucial predictors of academic achievement. Although brain structures and neural functioning that underlie cognitive control overlap substantially with those that underlie general intelligence (Barbey et al., 2012; Roca et al., 2010), these two higher-order cognitive processes are distinct (Blair, 2006; Blair, Zelazo, & Greenberg, 2005). The distinction has been shown both by factor-analytic evidence from typically developing children (Espy, Kaufmann, McDiarmid, & Glisky, 1999), and by findings in samples of children with developmental disorders (e.g., attention deficit hyperactivity disorder, phenylketonuria, specific learning disabilities) who performed poorly on executive function measures despite the fact that their general intelligence scores were in the normal range (Barkley, 1997; Diamond, Prevor, Callender, & Druin, 1997; McLean & Hitch, 1999).

In Chapter 2, to specifically explore the overlap between cognitive flexibility and intelligence, the correlation coefficients between flexibility and intelligence performance across studies that were previously selected for the relation between flexibility and achievement were examined. The combined effect size for the relation between cognitive flexibility and intelligence was positive and substantial, supporting the overlap between the two constructs. However, it is still unclear whether cognitive flexibility is related to academic performance beyond the impact of intelligence. As the number of studies reporting on the correlations between flexibility and academic performance and correcting for intelligence was insufficient, it was impossible to disentangle the contributions of cognitive flexibility and intelligence to academic performance. Nevertheless, the results provided insight into the relative contributions of cognitive flexibility and intelligence to academic outcomes. Intelligence showed a stronger association with academic performance than cognitive flexibility, which is in line with previous findings suggesting that general intelligence is one of the strongest predictors of academic achievement (Steinmayr, Ziegler, & Trauble, 2010). Given previous evidence reporting that executive function adds to the prediction of school performance beyond general intelligence (Blair, & Razza, 2007; Bull & Scerif, 2001; Clark,

Pritchard, & Woodward, 2010), further research should investigate whether flexible thinking specifically shows incremental validity in predicting achievement like other components of cognitive control.

There is a consensus that a revised and well-defined theory of general intelligence is needed as in the last decades the current, 'monolithic' one has lost its explanatory utility due to a lack of specificity (Blair, 2006). Two commonly used indicators of general cognitive ability are fluid and crystallized intelligence. The former refers to problem solving and inductive reasoning in novel situations while the latter pertains to acquired knowledge measured commonly by vocabulary tests (Jensen, 2002). There is some evidence that crystallized intelligence is a stronger predictor for performance on standardized academic tasks and college admission exams than fluid intelligence (Rohde & Thompson, 2007). In the meta-analytic study presented in Chapter 2, it was not possible to use the type of intelligence as a moderator for the relation between intelligence and academic performance due to the lack of studies in particular subcategories. Nevertheless, the results in Chapter 3 showing a strong association between vocabulary and educational attainment with respect to secondary school tracks seem to be line with previous evidence suggesting the important role of crystallized intelligence for achievement (Rohde & Thompson, 2007).

Self-regulation across the school transition

Self-regulation is important for students' school performance, but its development may also be shaped by what they experience at school. The main focus of Chapter 4 was the development of cognitive control, specifically cognitive flexibility, during the transition from kindergarten to the first year of formal schooling as this period may provide opportunities facilitating cognitive development. The positive effect of schooling on cognitive control was shown in a study reporting that third graders performed better on cognitive flexibility and planning than second graders of the same age (McCrea, Mueller, & Rauno, 1999). We found that children showing high accuracy in cognitive flexibility performance in kindergarten maintained their initial performance level from kindergarten to the first grade, whereas those in the low-accuracy group improved their performance substantially. On the other hand, children in the high-accuracy group became faster whereas the speed of flexible responding in the low-accuracy group did not change longitudinally. In other words, the low-accuracy group gained in accuracy and the high-accuracy group gained in speed of flexible responding following the school transition. The transition experience, with its cognitive challenges, may have played a compensatory role for the performance of less flexible thinkers whereas it may have added to the performance of more flexible thinkers by helping them to respond faster.

The results suggest that the transition to formal schooling may have helped children who performed less well in kindergarten to move their cognitive flexibility performance to

a more optimal level, therefore narrowed the performance gap in flexible thinking between more able children and their less able peers. It has been suggested that higher-order self-regulatory processes are “penetrable” by experience (Carlson, 2003). Empirical evidence also showed that positive parenting, particularly maternal scaffolding and autonomy-support, positively affects the development of executive function in young children by helping them to conceptualize rules, shifting attention flexibly, and think in a reflective manner mostly through play (Bernier, Carlson, & Whipple, 2010). In the same vein, negative experiences put high demands on automatic stress reactivity that is highly related to cognitive processes (Cicchetti, 2002; Welsh, Nix, Blair, Bierman, & Nelson, 2010). In formal education, cognitively stimulating material (i.e., lessons requiring abstract thinking) and structured learning context (i.e., rules) in classroom may provide great opportunities for children to use their attention and executive function skills (Ursache, Blair, & Raver, 2012). In this sense, the way how the school transition is experienced by children may matter for the development of self-regulation. The findings presented in Chapter 4 are encouraging in that some cognitive processes that contribute to self-regulation may be open to change through school experience; therefore the transition to formal education might be a period that future intervention programs and educational policies should target.

From research to practice

The school might be a resource of compensation for children who are developmentally less equipped than their peers. The critical question is what types of activities across the school transition can narrow the gaps further between more able and less able children in self-regulation. There is some empirical evidence showing that self-regulatory capacities can be improved by intervention programs integrated to the classroom curricula. For instance, Raver and colleagues (2011) tested the Chicago School Readiness Project (CSRP) program in a sample of low-income, Head-Start preschoolers in a randomized control trial. The intervention included extensive teacher training and consultation with an emphasis on children’s emotion regulation and behavioral management. The main objective was to improve teachers’ resources for a well-managed classroom context that reduces tension and stressful atmosphere in class. The CSRP supported the development of self-regulatory skills, specifically of executive function, but not *performance-based* effortful control (delay of gratification task designed to assess emotion regulation). In addition, gains in executive function mediated the relation between the impact of the program and gains in academic outcomes. The researchers stated that effortful control may moderate rather than mediate the effect of interventions. In other words, high effortful control may maximize the impact of intervention programs targeted to improve cognitive aspects of self-regulation. Relatedly, some studies demonstrated that a positive teacher–student relationship interacts with effortful

control in predicting future academic achievement; indicating that children with low effortful control can academically perform as well as those with high effortful control if they receive a high level of support (Liew, Chen, & Hughes, 2010; Silva et al., 2011). Similar to the CSR, there are other intervention programs (i.e., Tools of the Mind, see Diamond, Barnett, Thomas, & Munro, 2007; and PATHS Promoting Alternative Thinking Strategies, see Riggs, Greenberg, Kushe, & Pents, 2006), showing the possibility that self-regulatory capacities, particularly cognitive ones can be challenged and improved by simple, cost-effective, and teacher- and peer-assisted activities (e.g., pretend play, activities that require private speech and reflective thinking). It should be noted however that there are still some concerns about whether the gains in cognitive control can be generalized to academic learning (Welsh et al., 2010) and whether they promote long-lasting effects (Melby-Lervåg & Hulme, 2012) independent of task-specific learning (Shipstead et al., 2012).

Implications and policies for ethnic minority children

The disadvantaged position of ethnic minority students in education is a salient societal issue in almost all Western countries. These students perform less well on academic tasks, are overrepresented in lower educational tracks, less able to transfer to higher school tracks, and eventually show higher drop-out rates, which make them a target group for compensatory education programmes (Andriessen & Phalet, 2002; Magnuson & Duncan, 2006). The results in the current dissertation suggest that self-regulation and verbal ability are two important paths to a more successful academic trajectory. Given previous evidence reported in intervention studies, improving teachers' professional skills to render an optimal learning environment in class, which positively affects children's self-regulation (Raver et al., 2011), and supporting minority parents as the experts of their children's language and cognitive development (Leseman & Tuijl, 2001) seem to be promising attempts to foster positive academic trajectories of ethnic minority children. In addition, given growing evidence showing the positive links between multilingualism and cognitive control (e.g., Bialystok, 1999), and between cognitive control and academic achievement (e.g., Blair & Razza, 2007), promoting multilingual learning in minority students may improve academic performance through gains in cognitive control, an issue that deserves further research attention.

The transition to formal schooling may create a greater discontinuity between home and school for ethnic minority children, as lessons become more (host) language dependent, rules are more defined (by the host cultural expectations) and academic requirements are more demanding, meaning that parental support might be more needed but less available. From this perspective, minority children may experience the school transition to formal education more challenging and stressful than their majority peers, which may hinder the development of self-efficacy and the adaptive development of self-regulation. A smooth transition may help

them to benefit from stimulation and engagement to a greater extent, which in turn positively affects the development of their self-regulatory capacities (Blair & Ursache, 2011).

Limitations and future directions

It is important to note some limitations of the current dissertation. First, although the meta-analytic results presented in Chapter 2 provide a systematic examination regarding the relation between cognitive flexibility and academic outcomes, some of the moderators could not be tested due to the small number of studies, therefore the results regarding the moderator effects should be considered tentatively. For instance, there were very few studies reporting on the efficiency score, therefore these studies were combined with those reporting multiple scores in the analyses, which might have obscured a potential moderating effect of shifting scoring. Given that EF research is rapidly growing, future meta-analyses which include a larger set of empirical studies on this topic may allow for more valid tests of the moderators that could not be fully tested in Chapter 2.

Second, in the studies reported in Chapters 3 and 4, the response rate was low (18% for kindergarteners and 15.9% for preadolescents), which resulted in modest sample sizes. As previously reported, it is difficult to recruit nonwestern immigrants in the Netherlands, especially those with low SES for research purposes (Feskens, 2007; Yaman, 2009). However, it is important to note that the participating families did not differ from nonparticipating ones in terms of background characteristics. We did not include comparison groups of ethnic majority children in these studies. Therefore, it is unclear whether ethnic minority children's self-regulatory capacities differ from those in majority children. The main reason for not including a comparison sample is the fact that it is extremely difficult to recruit ethnic majority children who are comparable to ethnic minority children with respect to family background, as ethnic minority families are overrepresented in lower socioeconomic classes (Andriessen, Phalet, & Lens, 2006) and they often live socially segregated lives (Garcia Coll et al., 1996). Recruiting participants in cooperation with schools with multiethnic student profiles, rather than municipal records might be helpful in future research to recruit minority and majority families with similar socioeconomic backgrounds.

Third, in Chapters 3 and 4, each cognitive construct (i.e., cognitive flexibility and working memory) was measured by a single task. Particularly cognitive flexibility measures vary in the amount of instruction given to children (i.e., rule is kept implicit so that the child induces it by trial and error or it is explicitly given to the child), which led some researchers to make a distinction between deductive versus inductive measures of cognitive flexibility (Jacques & Zelazo, 2005). This may change the number of nonexecutive demands of the task, which is known as the so called 'task impurity problem' in the executive function literature. Using a battery of tasks and examining their interrelations to form latent factors would allow

for more robust conclusions. In addition, different scores of the same performance may show different patterns over time, as shown in Chapter 4. Therefore, taking both scores into account in future research may provide a more nuanced understanding of the development of cognitive control that is measured by performance-based tasks. Future studies may also include hot executive function tasks, which assess emotion regulation in motivationally significant situations (Zelazo & Carlson, 2012) for a broader perspective on the relation between self-regulation and academic achievement, as there is evidence that emotion regulation, measured by delay of gratification tasks in childhood predicted educational level 20 years later beyond the impact of intelligence (Casey et al., 2011).

Fourth, in Chapter 4, only two time points were available to assess the development of cognitive flexibility. Future studies would ideally include three time points, allowing for the use of latent growth models, which make it possible to look at variation in growth (i.e., slopes) and at potential predictors of this variation (e.g., verbal ability, see Hughes, Ensor, Wilson, & Graham, 2010), to examine whether the school transition leads to a particular acceleration in flexible thinking.

Finally, ethnic minority students are mostly enrolled in disadvantaged schools, which may widen the inequality between ethnic minority and majority children by providing fewer opportunities to be exposed to cognitively stimulating material and supportive teaching experiences (Crosnoe, 2005; McKown, 2013). Our studies did not include measures of the school context. Future studies focusing on the development of self-regulation in minority samples should take school characteristics into account.

Conclusion

In conclusion, the findings of the current dissertation confirm that cognitive self-regulation, and more specifically flexible thinking, is positively related to math and reading performance, indicating that the ability to switch between different mental representations and to take multiple perspectives simultaneously in response to changing task demands contributes to academic achievement across domains, as is the case for intelligence. In addition, behavioral self-regulation, specifically temperamental effortful control, is positively associated with educational attainment via self-efficacy (i.e., sense of competence). Temperamental characteristics such as persistence, motivation and freedom from distractibility may shape the way children view their capabilities, which is in turn related to their engagement with learning opportunities at school. The results also revealed that children showed differential gains in flexible thinking from kindergarten to formal schooling, as less able children made more progress following the transition. Thus, cognitive stimulation in formal schooling may play a compensatory role for children who are less equipped regarding self-regulatory

capacities at school entry. Facilitating these capacities may promote self-efficacy and school success in ethnic minority children.

REFERENCES

- Agostino, A., Johnson, J., & Pascual-Leone, J. (2010). Executive functions underlying multiplicative reasoning: Problem type matters. *Journal of Experimental Child Psychology, 105*(4), 286-305.
- Andriessen, I., & Phalet, K. (2002). Acculturation and school success: A study among minority youth in the Netherlands. *Intercultural Education, 13*(1), 21-36.
- Andriessen, I., Phalet, K., & Lens, W. (2006). Future goal setting, task motivation and learning of minority and non-minority students in Dutch schools. *British Journal of Educational Psychology, 76*, 827-850.
- Barbey, A. K., Colom, R., Solomon, J., Krueger, F., Forbes, C., & Grafman, J. (2012). An integrative architecture for general intelligence and executive function revealed by lesion mapping. *Brain, 135*, 1154-1164.
- Barkley, R. A. (1997). Behavioral inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin, 121*(1), 65-94.
- Bernier, A., Carlson, S. M., & Whipple, N. (2010). From external regulation to self-regulation: Early parenting precursors of young children's executive functioning. *Child Development, 81*(1), 326-339.
- Best, J. R., Miller, P. H., & Naglieri, J. A. (2011). Relations between executive function and academic achievement from ages 5 to 17 in a large, representative national sample. *Learning and Individual Differences, 21*(4), 327-336.
- Bialystok, E. (1999). Cognitive complexity and attentional control in the bilingual mind. *Child Development, 70*(3), 636-644.
- Bialystok, E. (2009). Bilingualism: The good, the bad, and the indifferent. *Bilingualism-Language and Cognition, 12*(1), 3-11.
- Bialystok, E. (2011). Coordination of executive functions in monolingual and bilingual children. *Journal of Experimental Child Psychology, 110*(3), 461-468.
- Bialystok, E., & Martin, M. M. (2004). Attention and inhibition in bilingual children: evidence from the dimensional change card sort task. *Developmental Science, 7*(3), 325-339.
- Blair, C. (2006). How similar are fluid cognition and general intelligence? A developmental neuroscience perspective on fluid cognition as an aspect of human cognitive ability. *Behavioral and Brain Sciences, 29*(2), 109-160.
- Blair, C., & Diamond, A. (2008). Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure. *Development and Psychopathology, 20*(3), 899-911.
- Blair, C., & Razza, R. P. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in kindergarten. *Child Development, 78*(2), 647-663.
- Blair, C., Ursache, A. (2011). A bidirectional model of executive functions and self-regulation. In K.D. Vohs & R.F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications - 2nd edition*. (pp. 300-320). New York: Guilford.
- Blair, C., Zelazo, P. D., & Greenberg, M. T. (2005). The measurement of executive function in early childhood. *Developmental Neuropsychology, 28*(2), 561-571.

- Bull, R., Espy, K. A., & Wiebe, S. A. (2008). Short-term memory, working memory, and executive functioning in preschoolers: Longitudinal predictors of mathematical achievement at age 7 years. *Developmental Neuropsychology*, *33*(3), 205-228.
- Bull, R., & Scerif, G. (2001). Executive functioning as a predictor of children's mathematics ability: Inhibition, switching, and working memory. *Developmental Neuropsychology*, *19*(3), 273-293.
- Carlson, S. M. (2003). Executive function in context: Development, measurement, theory, and experience. *Monographs of the Society for Research in Child Development*, *68*(3), 138-151.
- Casey, B. J., Somerville, L. H., Gotlib, I. H., Ayduk, O., Franklin, N. T., Askren, M. K., . . . Shoda, Y. (2011). Behavioral and neural correlates of delay of gratification 40 years later. *Proceedings of the National Academy of Sciences of the United States of America*, *108*(36), 14998-15003.
- Cicchetti, D. (2002). The impact of social experience on neurobiological systems: illustration from a constructivist view of child maltreatment. *Cognitive Development*, *17*(3-4), 1407-1428.
- Clark, C. A. C., Pritchard, V. E., & Woodward, L. J. (2010). Preschool executive functioning abilities predict early mathematics achievement. *Developmental Psychology*, *46*(5), 1176-1191.
- Crosnoe, R. (2005). Double disadvantage or signs of resilience? The elementary school contexts of children from Mexican immigrant families. *American Educational Research Journal*, *42*(2), 269-303. doi:10.3102/00028312042002269
- Cummins, J. (1991). *Interdependence of first- and second language proficiency in bilingual children*. In E. Bialystok (ed.), *Language processing in bilingual children*. Cambridge: Cambridge University Press.
- Diamond, A., Barnett, W. S., Thomas, J., & Munro, S. (2007). The early years - Preschool program improves cognitive control. *Science*, *318*(5855), 1387-1388.
- Diamond, A., Prevor, M. B., Callender, G., & Druin, D. P. (1997). Prefrontal cortex cognitive deficits in children treated early and continuously for PKU - Introduction. *Monographs of the Society for Research in Child Development*, *62*(4), 1-208.
- Driessen, G. (2000). The limits of educational policy and practice? The case of ethnic minorities in The Netherlands. *Comparative Education*, *36*(1), 55-72.
- Espy, K. A., Kaufmann, P. M., McDiarmid, M. D., & Glisky, M. L. (1999). Executive functioning in preschool children: Performance on A-not-B and other delayed response format tasks. *Brain and Cognition*, *41*(2), 178-199.
- Extra, G., & Yagmur, K. (2010). Language proficiency and socio-cultural orientation of Turkish and Moroccan youngsters in the Netherlands. *Language and Education*, *24*(2), 117-132.
- Feskens, R.C.W., Hox, J.J., Lensvelt-Mulders, G.J.L.M., & Schmeets, J.J.G. (2007). Nonresponse among ethnic minorities: A multivariate analysis. *Journal of Official Statistics*, *23*(3), 387-408.
- Garcia Coll, C., Lamberty, G., Jenkins, R., McAdoo, H. P., Crnic, K., Wasik, B. H., & Vázquez Garcia, H. (1996). An integrative model for the study of developmental competencies in minority children. *Child Development*, *67*, 1891-1914.
- Hughes, C., Ensor, R., Wilson, A., & Graham, A. (2010). Tracking executive function across the transition to school: A latent variable approach. *Developmental Neuropsychology*, *35*(1), 20-36.
- Huizinga, M., & Van der Molen, M. W. (2011). Task switching and shifting between stopping and going: Developmental change in between-trial control adjustments. *Journal of Experimental Child Psychology*, *108*(3), 484-503.

- Jacques, S., Zelazo, P.D. (2005). On the possible socio-communicative roots of cognitive flexibility. In B. Homer & C. Tamis-LeMonda (Eds.), *The development of social understanding and communication* (pp. 53-81). Mahwah, NJ: Lawrence Erlbaum Associates.
- Jensen, A. R. (2002). Psychometric g: Definition and substantiation. In R. J. Sternberg & E. L. Grigorenko (Eds.), *The general factor of intelligence: How general it is?* (pp. 39-54). Mahwah, NJ: Lawrence Erlbaum Associates.
- Kulak, A. G. (1993). Parallels between math and reading disability: Common issues and approaches. *Journal of Learning Disabilities, 26*(10), 666-673.
- Leseman, P.P.M. (2002). *Early childhood education and care for children from low income or minority backgrounds*, OECD.
- Leseman, P.P.M. & Van Tuijl, C. (2001). Home support for bilingual development of Turkish 4–6-year-old immigrant children in the Netherlands: Efficacy of a home-based educational programme. *Journal of Multilingual and Multicultural Development, 22*(4), 309-324.
- Liew, J. (2012). Effortful control, executive functions, and education: Bringing self-regulatory and social-emotional competencies to the table. *Child Development Perspectives, 6*(2), 105-111.
- Liew, J., Chen, Q., & Hughes, J. N. (2010). Child effortful control, teacher-student relationships, and achievement in academically at-risk children: Additive and interactive effects. *Early Childhood Research Quarterly, 25*(1), 51-64.
- Magnuson, K. A., & Duncan, G. J. (2006). The role of family socioeconomic resources in the black-white test score gap among young children. *Developmental Review, 26*(4), 365-399. doi:10.1016/J.Dr.2006.06.004
- Marsh, H. W., Trautwein, U., Ludtke, O., Koller, O., & Baumert, J. (2005). Academic self-concept, interest, grades, and standardized test scores: Reciprocal effects models of causal ordering. *Child Development, 76*(2), 397-416.
- Mayes, S. D., Calhoun, S. L., Bixler, E. O., & Zimmerman, D. N. (2009). IQ and neuropsychological predictors of academic achievement. *Learning and Individual Differences, 19*(2), 238-241.
- McCrea, S. M., Mueller, J. H., & Parrila, R. K. (1999). Quantitative analyses of schooling effects on executive function in young children. *Child Neuropsychology, 5*(4), 242-250.
- McKown, C. (2013). Social equity theory and racial-ethnic achievement gaps. *Child Development, 84*(4), 1120-1136. doi: 10.1111/cdev.12033
- McLean, J. F., & Hitch, G. J. (1999). Working memory impairments in children with specific arithmetic learning difficulties. *Journal of Experimental Child Psychology, 74*(3), 240-260.
- Melby-Lervåg, M., & Hulme, C. (in press). Is working memory training effective? A meta-analytic review. *Developmental Psychology*, doi: 10.1037/a0028228
- Morrison, F. J., Bachman, H. J., & Connor, C. M. (2005). *Improving literacy in America: Guidelines from research*. New Haven, CT: Yale University Press.
- Murad, S. D., Joung, I. M. A., van Lenthe, F. J., Bengi-Arslan, L., & Crijnen, A. A. M. (2003). Predictors of self-reported problem behaviours in Turkish immigrant and Dutch adolescents in the Netherlands. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 44*(3), 412-423.
- Müller, U., Liebermann, D., Frye, D., & Zelazo, P. D. (2008). Executive function, school readiness, and school achievement. In S. K. Thurman, & C. A. Fiorello (Eds.), *Applied cognitive research in K-3 classrooms* (pp. 41–83). New York and London: Taylor and Francis Group.

- Oller, D. K., & Eilers, R. E. (2002). *Language and Literacy in Bilingual Children*. Clevedon, UK: Multilingual Matters.
- Raver, C. C., Jones, S. M., Li-Grining, C., Zhai, F. H., Bub, K., & Pressler, E. (2011). CSRP's impact on low-income preschoolers' preacademic skills: Self-regulation as a mediating mechanism. *Child Development, 82*(1), 362-378.
- Riggs, N. R., Greenberg, M. T., Kusche, C. A., & Pentz, M. A. (2006). The mediational role of neurocognition in the behavioral outcomes of a social-emotional prevention program in elementary school students: Effects of the PATHS curriculum. *Prevention Science, 7*(1), 91-102.
- Roca, M., Parr, A., Thompson, R., Woolgar, A., Torralva, T., Antoun, N., . . . Duncan, J. (2010). Executive function and fluid intelligence after frontal lobe lesions. *Brain, 133*, 234-247.
- Rohde, T. E., & Thompson, L. A. (2007). Predicting academic achievement with cognitive ability. *Intelligence, 35*(1), 83-92.
- Scheele, A. F., Leseman, P. P. M., & Mayo, A. Y. (2010). The home language environment of monolingual and bilingual children and their language proficiency. *Applied Psycholinguistics, 31*(1), 117-140.
- Shipstead, Z., Redick, T. S., & Engle, R. W. (2012). Is working memory training effective? *Psychological Bulletin*. doi:10.1037/a0027473
- Silva, K. M., Spinrad, T. L., Eisenberg, N., Sulik, M. J., Valiente, C., Huerta, S., . . . Taylor, H. B. (2011). Relations of children's effortful control and teacher-child relationship quality to school attitudes in a low-income sample. *Early Education and Development, 22*(3), 434-460.
- Steinmayr, R., Ziegler, M., & Trauble, B. (2010). Do intelligence and sustained attention interact in predicting academic achievement? *Learning and Individual Differences, 20*(1), 14-18.
- Swanson, H. L., Jerman, O., & Zheng, X. H. (2009). Math Disabilities and Reading Disabilities Can They Be Separated? *Journal of Psychoeducational Assessment, 27*(3), 175-196.
- Ursache, A., Blair, C., & Raver, C. C. (2012). The promotion of self-regulation as a means of enhancing school readiness and early achievement in children at risk for school failure. *Child Development Perspectives, 6*(2), 122-128.
- Van der Sluis, S., de Jong, P. F., & van der Leij, A. (2007). Executive functioning in children, and its relations with reasoning, reading, and arithmetic. *Intelligence, 35*(5), 427-449. doi: DOI 10.1016/j.intell.2006.09.001
- Van Oort, F. V. A., Joung, I. M. A., Mackenbach, J. P., Verhulst, F. C., Bengi-Arslan, L., Crijnen, A. A. M., & Van der Ende, J. (2007). Development of ethnic disparities in internalizing and externalizing problems from adolescence into young adulthood. *Journal of Child Psychology and Psychiatry, 48*(2), 176-184.
- Welsh, J. A., Nix, R. L., Blair, C., Bierman, K. L., & Nelson, K. E. (2010). The development of cognitive skills and gains in academic school readiness for children from low-income families. *Journal of Educational Psychology, 102*(1), 43-53.
- Yaman, A. (2009). *Second-generation Turkish immigrant families in the Netherlands: Parenting and toddler behavior problems* (Doctoral dissertation). Department of Education and Child Studies, Leiden University, the Netherlands.
- Zelazo, P. D., & Carlson, S. M. (2012). Hot and cool executive function in childhood and adolescence: Development and plasticity. *Child Development Perspectives, 6*(4), 354-360.

Zhou, Q., Chen, S. H., & Main, A. (2012). Commonalities and differences in the research on children's effortful control and executive function: A call for an integrated model of self-regulation. *Child Development Perspectives*, 6(2), 112-121.