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Readiness for School Involves an Array of Skills: Let's Not Forget Fine Motor Development

Interest in children's success as readers has existed for a long time. With growing attention to our nation's global competitiveness, school success with math and science is joining reading as important topic areas for children's early learning. As a result, new research is exploring predictors of school success with math and science as well as for reading.

Towards this end, researchers from the National Center for Research in Early Childhood Education (NCRECE) re-examined longitudinal data from a ground-breaking study that identified kindergarten readiness factors. Their findings, which are presented in two related studies, confirm the value of a broad-based, early childhood education (ECE) curricula that incorporate multiple content areas and facilitates children's overall development.

About the Two Studies

The two studies examined three international, longitudinal data sets from a 2007 study that broke new ground by testing an innovative methodology for identifying long-term indicators of kindergarteners' school success – in this instance, those skills known before school entry to strongly and consistently predict later achievement in math and reading. These data sets include information on children from birth to kindergarten entry who were followed through as far as fifth grade. NCRECE researchers re-examined these data sets to look at (1) the relationship between socio-emotional skills and academic achievement and (2) the role of kindergarteners' fine motor skills and knowledge of the world in predicting later school achievement.

Confirming School Readiness as a Comprehensive Construct

Six findings meaningful to children's school success, with important implications for policy and practice, emerged from these two studies. Significant was affirmation of two important school readiness indicators – children's fine motor skills and early understanding of their world. Also noteworthy was verification of focused attention as a predictor of later achievement. Finally, the finding that early math skills strongly contributed to later math, reading, and science achievement highlights its importance as a component of ECE curricula.

Terms

Attention: Attentiveness, concentration, and persistence

General understanding of the world: Children's early comprehension of physical and social science facts

School success indicators: Those skills known before school entry to strongly and consistently predict later achievement.

Here, in more detail, are the studies' findings:

- Fine motor skills were a strong and consistent predictor of later achievement. The meaning of this finding is bolstered by neuroscience and developmental research that link children's cognitive and fine motor skill development. Children's newly developing motor skills expand their opportunity to experience more diverse and challenging environments for learning, thereby strengthening cognitive performance.

- Children's general understanding of their world was the strongest predictor of later reading and science, and along with early math skills, was a strong predictor of later competency in math.
- Children's later science scores were strongly predicted by general knowledge of their world in kindergarten, as well as, though to a lesser extent, by their levels of early math, attention, and fine motor skills.
- Kindergarteners' ability to sustain their attention was confirmed as a strong predictor of children's later success with math, reading, and science.
- Early math skills were found to be a strong predictor of later math, science, and reading achievement, whereas early reading did not predict later math or science, and only weakly predicted later reading.
- Early socio-emotional skills and behavior problems, such as hyperactivity and antisocial behavior, while not a strong or consistent predictor of academic achievement, made a difference to children's later success in math and reading.

Especially significant is the affirmation of two important school readiness indicators – children's fine motor skills and early understanding of their world.

Linking Research to Practice

These findings reinforce the importance of including domains such as attention, fine motor skills, and children's early understanding of their world into school readiness screenings and assessments. They also buttress the contribution of broad and comprehensive ECE curricula to children's later academic success. With this in mind, teachers will want to consider the following:

- Implement a broad and comprehensive curriculum that offers children a wide range of learning experiences. Promoting children's later academic success depends on teachers being intentional in their efforts to foster enhanced fine motor skills, extended attention, broader knowledge of the world, and improved math and reading skills, including language and vocabulary development.
- Seek out opportunities to embed important concepts in everyday activities. For example, turn classroom routines into opportunities for using math skills (for example, counting and subtracting "users" when lining up to go outside, matching shapes (for example, when returning blocks to their proper place on shelves) or when preparing for meal times (for example, practicing one-to-one correspondence when distributing paper cups and napkins).
- Enrich classrooms with activities that engage children's extended attention and involve the use of fine and gross motor skills while also expanding their knowledge of the world.

The findings from these two studies underscore the importance of comprehensive school readiness screenings and assessments, and also endorse the use of broad-based curriculum in early education settings.

ECE has long endorsed the educational importance of children's motor development and promoted basic understanding of science and social studies. Findings from these two studies provide evidence to support these longstanding traditions. Early educators also prioritize the skills associated with attentiveness, concentration, and perseverance. These studies underscore the importance of these developmental areas for later academic success.

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