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Students' Self-Concepts of Ability in Math, Reading Predict Later Math, Reading Attainment

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Self-Concept Predicts Academic Achievement Across Levels of the Achievement Distribution: Domain Specificity for Math and Reading

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Educational and developmental psychologists have tried to understand how skills and motivation are linked to academic achievement. While research supports ties between individuals' concepts of their abilities and their achievement, we lack a complete picture of how these relations develop from childhood to adolescence. A new longitudinal study looked at how youths' self-concepts are linked to their actual academic achievement in math and reading from middle childhood to adolescence. The study found that students' self-concepts of their abilities in these two academic domains play an important role in motivating their achievements over time and across levels of achievement.

The findings come from researchers at Pontificia Universidad Católica de Chile and the University of Michigan. They appear in the journal *Child Development*.

"Our study shows that youths' perceptions of their abilities in middle childhood are important in promoting their later achievement in math and reading," explains Maria Ines Susperreguy, assistant professor in the Faculty of Education at Pontificia Universidad Católica de Chile, who led the study. "This relation is not limited to students who perform at the top levels, but extends to students with different levels of achievement in math and reading. Even the lowest-performing students who had a more positive view of their math and reading abilities had higher levels of achievement in math and reading."

The researchers looked at three data sets of children ages 5 to 18—the Avon Longitudinal Study of Parents and Children (13,901 British children), the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (1,354 American children), and the Panel Study of Income Dynamics-Child Development Supplement (237 American children). Each data set included measures of self-concept and standardized assessments of early and later academic achievement.

Students' self-concept was defined as their perceptions of their capabilities to succeed on academic tasks. The study considered children's earlier achievement as well as their characteristics and backgrounds, including birth weight, race/ethnicity, gender, age, and their mother's education.

The study found that children's beliefs about their math and reading abilities explain some of the variance in their later math and reading achievement, after controlling for demographics and children's characteristics, as well as prior academic achievement. The study also revealed that children's self-concept of their ability in math predicted later math achievement, and that their selfconcept of their ability in reading predicted later reading achievement, but not vice versa. This finding suggests that the links between self-concept of ability and later achievement are specific to domains; that is, there is a link from students' self-concept about reading to reading achievement, and from students' self-concept about math to match achievement. The findings apply to students of all levels of achievement.

"When trying to understand the issues of low academic performance, we often examine what additional skills children need to succeed in school," says Pamela Davis-Kean, professor of psychology and research professor at the Institute for Social Research at the University of Michigan, who coauthored the study. "Our findings, replicated across three data sets, show that it is important to understand the relation between children's perceptions of their abilities and later achievement."

The study was funded by the National Science Foundation-supported Center for the Analysis of Pathways from Childhood to Adulthood and the Institute of Education, University College London. The study also received support from the UK Medical Research Council, the Wellcome Trust, and the University of Bristol, which supports the Avon Longitudinal Study of Parents and Children.

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Summarized from *Child Development*, Self-Concept Predicts Academic Achievement Across Levels of the Achievement Distribution: Domain Specificity for Math and Reading by Susperreguy, MI (Pontificia Universidad Católica de Chile), Davis-Kean, PE (University of Michigan), Duckworth, K (independent scholar), and Chen, M (University of Michigan). Copyright 2017 The Society for Research in Child Development, Inc. All rights reserved.