NEWS | POSTED AUGUST 27, 2019

Early Improvements in Preschoolers' Skills Help Explain Long-Term Benefits of Intervention

PRESS RELEASE / CHILD DEVELOPMENT: Embargoed for Release on August 27, 2019

PRESS RELEASE

Published

Tuesday, August 27, 2019 12:00am

Preschool Self-Regulation and Preacademic Skills as Mediators of the Long-Term Impacts of an Early Intervention

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Current research findings are mixed as to whether preschool programs can improve individuals' outcomes in the long term, with some studies pointing to benefits years later and others showing a fadeout of cognitive gains as early as elementary school. A new longitudinal study explored the long-term impacts of a preschool quality improvement program for low-income children on their self-regulation and academic skills in high school.

The program, which focused on teachers' professional development and classroom management, boosted participants' grades in high school, which the researchers say was explained partly by academic gains made in preschool. The study also found some evidence of long-term effects on students' executive function skills, including their cognitive skills in impulse control and attention, which were partially explained by early improvements in math.

The study was conducted by researchers at the Harvard Graduate School of Education and is published in *Child Development*, a journal of the Society for Research in Child Development.

The Chicago School Readiness Project (CSRP) was an experimental, longitudinal teacher professional development and coaching intervention that took place in 35 Head Start classrooms across 18 centers in 2004 and 2005. Head Start is a federally funded program that enrolls preschool students with a focus on low-income families. Centers were recruited based on their location in high-crime, high-poverty neighborhoods in Chicago, and were randomly assigned to the intervention (treatment) group or to a control group.

Researchers sought to determine whether CSRP's effect on children's academic skills and self-regulation in preschool could account for the program's long-term effects on those skills in high school. Children's academic skills included their knowledge of math, language, and literacy. Self-regulation skills included cognitive and behavioral skills in executive function and attention, as well as impulse and effortful control.

CSRP's participants were 466 low-income, racially and ethnically diverse 3- to 4-year-olds from south and west neighborhoods of Chicago. About half attended Head Start in centers randomly assigned to receive CSRP; the others went to traditional Head Start programs. The study measured children's self-regulation and academic skills using direct assessments at the start and end of their preschool year, then followed up 10 years later, when most of the participants were beginning high school.

"Our results point to the sustained impacts of interventions that provide quality enhancements to existing preschool programming," says Dana Charles McCoy, assistant professor of human development and psychology at the Harvard Graduate School of Education, who led the study. "In disadvantaged contexts, efforts to improve the well-being of preschool teachers and classroom management appeared to result in long-term benefits for children's academic outcomes, even in the absence of additional supports for instruction."

Unlike many of the comprehensive preschool programs that have been studied (e.g., the Perry Preschool Project and Abecedarian, which compared intensive early childhood education programming to parental care in the 1970s), CSRP represents a new generation of early interventions that aim to test the benefits of services that supplement or maximize the impact of existing preschool programs. CSRP was a teacher professional development and coaching intervention with additional, targeted supports for students with significant behavioral challenges. It focused on helping teachers implement positive disciplinary strategies and manage their own experiences of stress in the classroom.

The study found that the long-term positive impact of the program on participants' high school grades—which amounted to approximately one-quarter of a letter grade—could be explained, in part, by gains they made in preschool in vocabulary and math skills. However, the program's effects on early self-regulatory skills did not predict improvements in executive function when the participants were in high school. Based on previous findings from the CSRP study, the study's authors hypothesize that providing teachers with positive classroom management and stress reduction strategies may have led to a more positive classroom climate, which in turn resulted in immediate improvements in students' self-regulatory and academic skills. This study suggests that the short-term improvements in children's basic vocabulary and math skills, in particular, laid the groundwork for children's development of more advanced academic competencies over time.

The study also found that long-term impacts of the CSRP intervention on executive function might have been partially attributable to improvements in math skills when the participants were in preschool. These gains in math, the authors surmise, could have laid the foundation not only for accelerated academic development but also for improvements in domain-general skills such as executive function.

The study's authors acknowledge several limitations to their study, including that the findings varied slightly depending on the statistical modeling approach they used and should therefore be considered suggestive and not conclusive. In addition, they note that their measures of self-regulation and academic outcomes reflect a relatively narrow representation of participants' skills and that self-reported grades as a measure of academic skill in high school could have been biased.

"Given recent increases in state and federally funded preschool participation, it's important that we understand both the short- and the long-term impacts of early interventions, as well as the skills that may account for these effects," according to Stephanie Jones, Gerald S. Lesser Professor of Early Child Development at the Harvard Graduate School of Education, a coauthor of the study.

The study was supported by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development of the National Institutes of Health, and the Institute of Education Sciences of the U.S. Department of Education.

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Summarized from *Child Development*, *Preschool Self-Regulation and Academic Skills as Mediators of the Long-Term Impacts of an Early Intervention* by McCoy, DC, Gonzalez, K, and Jones, S (Harvard Graduate School of Education). Copyright 2019 The Society for Research in Child Development, Inc. All rights reserved.

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