

# Investigation reveals varied impact of preschool programs on long-term school success

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Early education programs are widely believed to be effective public investments for helping children succeed in school and for reducing

income- and race-based achievement gaps. However, a new study conducted by a team of investigators from Teachers College, Columbia University, University of Virginia, University of California-Irvine, and the University of Delaware finds mixed evidence on the long-term effectiveness of today's preschool programs for helping children succeed in school.

The study, "[Unsettled science on longer-run effects of early education](#)," published in *Science*, examined published evaluations of well-established, publicly funded preschool programs using rigorous designs.

The four evaluations reported a mix of positive, negative, and no differences in the school performance of children who did and did not attend preschool programs in [elementary school](#) and beyond.

The study challenges prevalent assumptions within the field, emphasizing the importance of identifying the key factors that foster the development of skills crucial for success in both academic endeavors and life, particularly among children from disadvantaged backgrounds.

"Preschool programs have long been hailed as effective interventions, yet our study reveals a more nuanced reality," says senior author of the study Margaret Burchinal, Research Professor in the Center for Advanced Study of Teaching and Learning, University of Virginia.

"While many presume their positive impact, rigorous evaluations show a mix of outcomes, including both successes and setbacks and, in some cases, no discernible long-term effects. It's imperative that we design preschool programs to uniformly promote school success, especially for children from families with low income."

Burchinal adds, "Crucially, for parents, especially those with limited financial means, access to reliable childcare is essential for workforce

participation. Equally vital are public preschool programs that not only offer dependable care but also lay a solid foundation for their children's academic success."

Public opinion towards preschool is shaped primarily by two widely recognized randomized trials that found significant long-term benefits from attending preschool, as well as other less rigorous studies that suggest positive short-term effects and, in a few cases, positive long-term outcomes. However, recent high-quality randomized evaluations of public preschool programs have produced conflicting evidence.

While these evaluations demonstrate positive impacts on academic skills at school entry, it remains unclear whether these programs improve long-term academic success and beyond. Two evaluations of scaled-up pre-kindergarten programs showed mixed results.

The Boston program improved high school graduation rates, while the Tennessee program led to worse outcomes in elementary school. Two other evaluations found no differences in outcomes between attendees and non-attendees. This highlights the need for more research on effective preschool practices.

These four studies paint a somewhat less rosy picture of preschool's ability to enhance opportunities for children than prior studies. The authors argue that the optimistic findings from the earlier widely cited random-assignment studies from over 50 years ago may not carry over to today's programs.

Both programs served small numbers of children, and children who lost the entrance lotteries did not have access to many of the safety-net services and childcare options available to parents today. Although most recent evaluations show public preschool programs improve literacy and math skills at school entry, that advantage fades quickly after children

enter elementary school.

The less rigorous studies of scaled-up programs typically rely on limited information about attendees and nonattendees, thereby making it possible that nonattendees differed from attendees on important other factors—such as parenting beliefs and practices—that could account for findings favoring the attendees.

"Our review suggests that researchers should be more cautious when making policy recommendations regarding the effects of public pre-k programs," said Tyler Watts, Assistant Professor in Developmental Psychology at Teachers College, Columbia University.

"At present, the best research studies make it hard to predict the long-term effects of these investments. Certainly, we agree that [early childhood education](#) is an important area for public investment. Still, we cannot confidently claim that all public pre-k programs produce positive long-term results."

The author's [policy recommendations](#):

- The funding of public [preschool programs](#) requires lottery-based evaluations of oversubscribed classrooms. These evaluations should measure a wider variety of classroom practices and follow [children](#) in elementary school through high school and, ideally, into adulthood.
- To conduct longer-run follow-ups of existing lottery studies to see if they provide benefits in adulthood. The first lottery-based evaluation of the Boston pre-kindergarten program also did not detect differences in elementary school, so it is important to see if other programs show similar impacts.

**More information:** Margaret Burchinal, Unsettled science on longer-run effects of early education, *Science* (2024). [DOI: 10.1126/science.adn2141](https://doi.org/10.1126/science.adn2141).  
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