

Montessori preschool boosts academic results and reduces income-based inequality: study

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Children working with math materials in a Montessori classroom. Credit: Laura Joyce-Hubbard, Forest Bluff School

Children in Montessori preschools show improved academic performance and social understanding, while enjoying their school work more, finds the first longitudinal study of Montessori education outcomes. Strikingly, children from low-income families, who typically

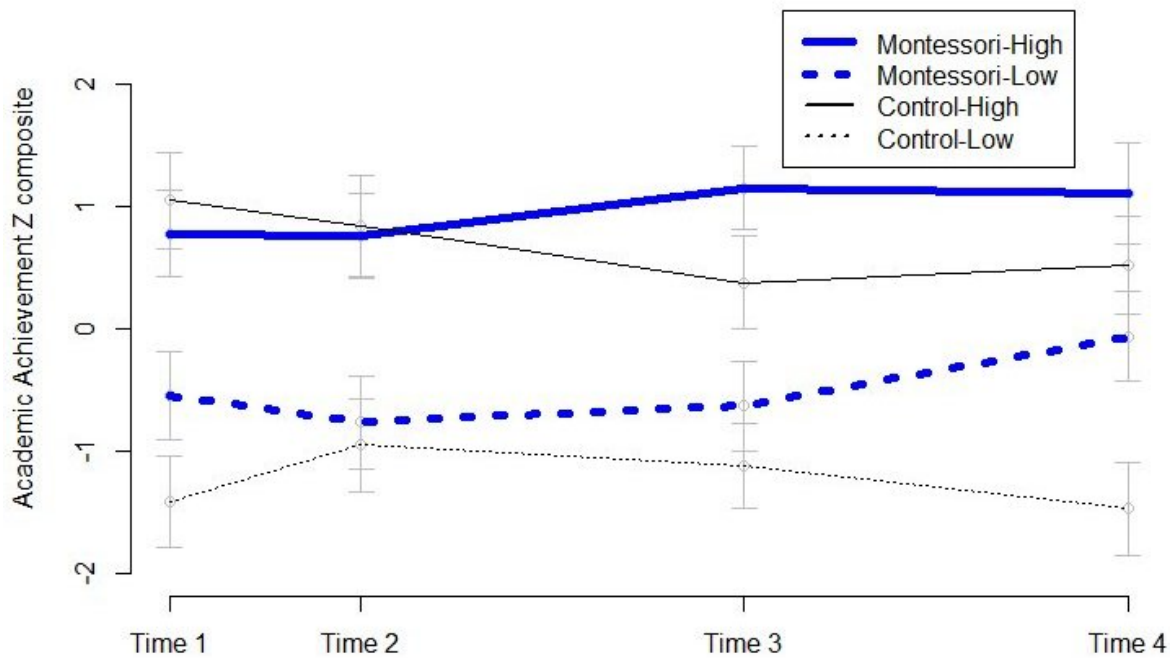
don't perform as well at school, show similar academic performance as children from high-income families. Children with low executive function similarly benefit from Montessori preschools. The study, published in *Frontiers in Psychology*, suggests that well-implemented Montessori education could be a powerful way to help disadvantaged children to achieve their academic potential.

"The study is relevant for parents choosing what schools to enroll their children in, and for school districts in deciding what kinds of schools to offer," says one of the study's authors, Angeline Lillard, of the University of Virginia, USA.

Good [preschool](#) education is crucially important. During the first six years of life, children's brains develop significantly, and many of these changes can be permanent. Ensuring that children get a good head start could help them for the rest of their lives.

Previous research suggests that the Montessori method—which aims to develop both social and academic abilities in children—is a promising educational approach. Unlike conventional schools, children in Montessori classrooms can move around freely, choose from a range of educational activities, and receive no grades or rewards for performance. However, there is an overall lack of knowledge about how effective the Montessori method is, and how it compares with conventional education.

Lillard and her colleagues compared educational outcomes for a large group of children in Montessori preschools or conventional preschools in Connecticut, USA. The research team carried out a variety of assessments with the children over a three-year period, from when they were aged three until they were aged six.



Academic achievement over time for children in Montessori (blue lines) versus those in business-as-usual non-Montessori schools; the dotted lines represent children whose family income is lower (average \$32, 627) or higher (average \$105,804). Within income levels and across school types, performance was equal when children were three years old (Time 1 and Time 2). Over time, the Montessori children began to perform better. The lower income children in Montessori showed a solid upwards slope and were statistically not different from the higher income children by Time 4 (5 years old). Unfortunately, lower income children in business-as-usual schools showed a strong downwards slope from Time 2 on. Credit: Angeline S. Lillard, Megan J. Heise, Eve M. Richey, Xin Tong, Alyssa Hart and Paige M. Bray

"We found that children in Montessori schools did better overall than children in conventional schools," says Lillard. "The greater gains in academic achievement for Montessori children were accompanied by

greater gains in social understanding, stronger persistence on challenging tasks, and more enjoyment of academic tasks."

The researchers also looked at children from two groups that typically do not perform as well at [school](#): those from poorer backgrounds and those with lower [executive function](#)—a measurement of skills that allow someone to control their behavior to achieve a goal.

Strikingly, the Montessori preschools significantly helped low-income children to perform as well as wealthier children academically. Statistically, after 3 years in the preschool programs, low-income Montessori children performed as well as high-income children in both Montessori preschools and conventional preschools.

Similarly, the team found that children with lower executive function were not at a disadvantage in Montessori schools, and performed as well as those with higher executive function. These findings are in stark contrast with what the researchers found in conventional schools, where low-income children, and those with lower executive function, performed worse than their peers.

The team plans to investigate whether all Montessori schools are as beneficial, or if only high-quality Montessori produces these effects. Another possibility is that Montessori schools attract better teachers. Future work will look at how Montessori teacher training programs affect educational outcomes.

"Montessori education started with very poor [children](#) in a housing project in Rome, over 100 years ago," says Lillard. "However, several of today's most prominent entrepreneurs went to, and have publicly spoken about the influence of, Montessori schools."

More information: Angeline S. Lillard et al, Montessori Preschool

Elevates and Equalizes Child Outcomes: A Longitudinal Study, *Frontiers in Psychology* (2017). [DOI: 10.3389/fpsyg.2017.01783](https://doi.org/10.3389/fpsyg.2017.01783)

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