

Does Preschool Matter?

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For many kids, the most important years of schooling come before they can even read. Consider the groundbreaking work of the Nobel Prize-winning economist James Heckman, who has repeatedly documented the power of early childhood education. One of his best case studies is the Perry Preschool Experiment, which looked at 123 low-income African-American children from Ypsilanti, Michigan. (All the children had IQ scores between 75 and 85.) When the children were three years old, they were randomly assigned to either a treatment group, and given a high-quality preschool education, or to a control group, which received no preschool education at all. The subjects were then tracked over the ensuing decades, with the most recent analysis comparing the groups at the age of 40. The differences, even decades after the intervention, were stark: Adults assigned to the preschool program were 20 percent more likely to have graduated from high school and 19 percent less likely to have been arrested more than five times. They got much better grades, were more likely to remain married and were less dependent on welfare programs. This is why, according to [Heckman](#) and colleagues, every dollar invested in preschool for at-risk children reaps somewhere between eight and nine dollars in return.

Why is preschool so important? The answer is obvious: The young mind is wonderfully malleable, able to develop new habits with relative ease. Furthermore, the benefits of preschool are not equally distributed. Rather, they seem to be particularly essential for those kids from the most disadvantaged households. A new paper in *Psychological Science* by [Elliot Tucker-Drob](#), a psychologist at the University of Texas at Austin, helps explain why this is the case. He wanted to tease out the relative contributions of nature and nurture, genes and environment, in the improvement of academic skills during pre-kindergarten education. His data set made these questions possible: Tucker-Drob used a national sample of 1,200 identical and fraternal twins born to 600 families of various incomes and ethnicities across the United States in 2001. Because he was comparing identical twins, who share 100 percent of their genes, and fraternal twins, who share 50 percent, he was able to calculate the relative genetic and environmental influences on achievement at age five, both for those kids who had been enrolled in preschool and those who went without.

His main finding might, at first glance, seem somewhat paradoxical. According to the twin data, family environmental factors — the nurture side of the equation — accounted for about 70 percent of the variance in test scores for children who did *not* attend preschool. In contrast, those same family factors only accounted for about 45 percent of variance among children who attended preschool.

How can preschool alter the relative contribution of nature and nurture? And why does pre-k education make genetics *more* important? The answer has to do with the constraints on mental development. When kids are denied an enriched environment, when they grow up in a stressed home without lots of books or conversation, this lack of nurture holds back their nature. As a result, the children are unable to reach their full genetic potential. (Razib Khan says it best: “When you remove the environmental variance, the genetic variance remains.”) The gift of preschool, then, is that closes the

yawning gap between the life experiences of wealthy and poor toddlers, thus making whatever differences remain more important.

This effect was clearly demonstrated by the standardized test data, as Tucker-Drob looked at changes in scores correlated with preschool. Not surprisingly, he found that preschool significantly closed the achievement gap between rich and poor kids. However, this winnowing of the gap was entirely due to the raised scores among those from disadvantaged homes. In fact, Tucker-Drob found that children raised in wealthier homes got no benefit at all from pre-k education, as their test scores remained flat. Because these kids were already receiving plenty of cognitive stimulation at home, it didn't really matter if they were also stimulated at school. It's as if their brains were already maxed out.

This latest study builds on previous work by Tucker-Drob showing that the impact of parents, at least relative to genetics, largely depends on socioeconomic status. Last year, he looked at 750 pairs of American twins who were given a test of mental ability at the age of 10 months and then again at the age of 2. As in this latest study, Tucker-Drob used twin data to tease apart the importance of nature and nurture at various points along the socioeconomic continuum. The first thing he found is that, when it came to the mental ability of 10-month-olds, the home environment was the key variable, across every socioeconomic class. This shouldn't be too surprising: Most babies are housebound, their lives dictated by the choices of their parents.

Results for the 2-year-olds, however, were dramatically different. In children from poorer households, the decisions of parents still mattered. In fact, the researchers estimated that the home environment accounted for approximately 80 percent of the individual variance in mental ability among poor 2-year-olds. The effect of genetics was negligible.

The opposite pattern appeared in 2-year-olds from wealthy households. For these kids, genetics primarily determined performance, accounting for 50 percent of all variation in mental ability. For parents, then, the correlation appears to be clear: As wealth increases, the choices of adults play a much smaller role in determining the mental ability of their children.

There are two lessons here. The first lesson is that upper-class parents worry too much. Although adults tend to fret over the details of parenting — Is it better to play the piano or the violin? Should I be a Tiger Mom or a Parisian mom? What are the long-term effects of sleep training? — these details are mostly insignificant. In the long run, the gift of money is that it gives a child constant access to a world of stimulation and enrichment, thus allowing her to fulfill her genetic potential. The greatest luxury we can give our children, it turns out, is the luxury of being the type of parent that doesn't matter at all.

The second lesson is that stunning developmental inequalities set in almost immediately. As Tucker-Drob demonstrates, even the mental ability of 2-year-olds can be profoundly affected by the socioeconomic status of their parents. The end result is that their potential is held back.

And this is why we need good preschools. They are not a panacea, and their impact varies depending on quality, but early childhood education is still an essential first step toward eliminating the achievement gap. Life is unfair; some kids will always be born into

households that have much less. Nevertheless, we have a duty to ensure that every child has a chance to learn what he's capable of.