Poverty and K–12 schooling

Four panelists spoke on the topic of poverty and K–12 schooling. George Farkas gave an overview of K–12 interventions and their effect on achievement gaps, finding the most promise in the "no excuses" school model and in one-to-one tutoring during the school day. Rucker Johnson looked at the interactive effects of Head Start and K–12 spending, arguing that for children from low-income families, additional Head Start spending has a much greater effect on outcomes such as high school graduation when K–12 spending is high, compared to when it is low. Chloe Gibbs discussed the effects of full-day compared to half-day kindergarten, and finds that the longer day does have a large, positive effect on literacy skills. Finally, Jennifer Jennings described a study examining high school choice for eighth graders in New York City, concluding that a policy ostensibly intended to inform students and ensure that they choose the school that is the best fit for them actually acts as a barrier to students from disadvantaged families. This set of articles summarizes their presentations.

K–12 programs to reduce the intergenerational transmission of poverty

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Children from the lowest income quintile begin kindergarten more than one standard deviation lower in both reading and math skills than children in the top quintile.[1] They are also below children in the top quintile in academic work habits, and above them in antisocial behavior. These gaps persist, and may increase, as students move through their schooling careers. This article reviews past and present programs intended to reduce these achievement gaps, and identifies promising avenues to be explored in the future.

Preschool and kindergarten programs

Children who begin kindergarten behind their peers face a difficult battle trying to catch up and ongoing efforts aimed at closing these gaps prior to the start of schooling have had mixed results.

The Head Start program began in 1965 using a "whole child" model to provide comprehensive services to children and families, including preschool education, health care, and parental support. An evaluation of the program in 2002 found small positive effects that did not continue after children entered kindergarten.[2] One explanation for the small differences detected between those in the Head Start treatment group and those in the control group is that there were more opportunities for quality preschool education for the target Head Start population than there were when the program began, so many in the control group also obtained early education during the study period. There have also been criticisms of the Head Start curricula.

Some state pre-kindergarten programs have shown promise, while others have not.[3] The Boston Pre-K program, which used very high-quality curricula, showed significant positive effects at the beginning of kindergarten, but the long-term effects of the intervention are unknown.

Full-day kindergarten programs have been shown to be effective, but about 70 percent of children are already participating in such programs, so there is limited room for expansion.[4] Transitional kindergarten, an extra year of kindergarten before beginning first grade, has been found to be effective for certain students and should be part of the solution for children who appear likely to benefit from it. This, too, already exists widely.[5]

There appears to be an issue with alignment between pre-kindergarten and subsequent year curricula, which suggests that teachers need to be able to provide instruction that complements the pre-kindergarten boost for those who received it. For this reason, pre-kindergarten programs should either be universal so that instruction in kindergarten and beyond can take advantage of pre-kindergarten gains, or elementary school teachers should receive additional training to provide differential instruction depending on a child's starting point.

Narrowing achievement gaps at school entry is important, and there are existing curricula that can do this, but they are not widely used. In particular, curricula for the largest preschool program, Head Start, need to be significantly improved or replaced. Because even programs that achieve large positive effects prior to school entry are likely to have those effects fade out in later years, it is likely that effective interventions need to be multi-year, and include a mechanism to help students who fall behind in later years to catch up.

Interventions beyond kindergarten

I reviewed results for a number of different approaches to narrowing achievement gaps in first grade and beyond that appear unlikely to be a large part of the solution. These

include instructional innovations, social and emotional learning programs, summer instruction, No Child Left Behind accountability, after-school tutoring, and whole-school reform. However, I did identify several interventions that appear to hold promise for closing achievement gaps, including tutoring during the school day, small schools, and "no excuses" schools. These approaches are discussed below.

Intensive tutoring during the school day

Several studies have shown positive results from intensive and extensive, structured, very small group tutoring during the school day. These results have been found for both reading and math interventions.[6] Evaluations of one company that provides tutoring services, SAGA, have shown positive results in Houston and Chicago.[7] The cost of this intervention is $3,800 per participant, but could be brought down to $2,500 if delivered at scale. Tutoring is provided by paraprofessionals (rather than teachers), using a 2-to-1 student-tutor ratio. Such tutoring during the school day, every day, for a total of around 150 hours per school year, could play a significant role in narrowing achievement gaps among students at all grade levels. If this intervention is provided continuously through all grade levels for those who need it, it could eliminate the fade-out problem that one-time interventions have had.

Small schools

One study found that small high schools of choice increased graduation rates for disadvantaged students in New York City by 9.5 percentage points, which closes half of the black-white graduation gap, without increasing annual school operating costs.[8] These gains in graduation rates were achieved without significantly raising test scores, which suggests that more work needs to be done in examining how interim measures of academic achievement relate to long-term outcomes.

"No excuses" schools

"No excuses" charter schools follow a model of high expectations, with all students following a college preparatory curriculum. They have strict behavioral and disciplinary codes, and spend more time on academics, with longer school days and extended school years. These schools enroll a very high percentage of low-income and minority students, and have an intense focus on reducing achievement gaps, with tutoring during the school day provided to students who fall behind their peers.

A review of experimental studies of "no excuses" schools found that among students who applied, those who were randomly chosen to attend gain 0.25 of a standard deviation on math scores and 0.16 of a standard deviation on literacy scores as a result of attending for one year.[9] If such gains continued each year as students moved up the grades, these schools could be very effective at closing achievement gaps.

One example of a "no excuses" charter school is the Knowledge is Power Program (KIPP), a nonprofit network of 200 public charter schools. Evaluations of KIPP have shown significant positive effects. Although the sustainability and scalability of this strategy is yet to be determined, the intervention appears to me to be the most promising of all available options, and I suggest that the attributes of KIPP schools be implemented as widely as possible in schools serving low-income students.

Other than program evaluation, what research would be most useful?

Beyond evaluating particular interventions, it is essential that research be done on program effect fade-out and how to prevent it. This means understanding achievement growth trajectories (examining course grades as well as test scores) and how they are related to details of instruction at each grade level. It also means understanding how and why later important outcomes such as high school graduation or college entrance are related to trajectories of test scores, course grades, and other variables.■

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[4]For full-day kindergarten outcomes, see C. R. Gibbs, "Experimental Evidence on Early Intervention: The Impact of Full-day Kindergarten," Working Paper, Batten School of Leadership and Public Policy, University of Virginia, No. 34, 2014; For proportion of children enrolled in full-day kindergarten, see *Early Childhood Longitudinal Study, Kindergarten Class of 2010–2011*, National Center for Education Statistics. https://nces.ed.gov/ecls/kindergarten2011.asp

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[7]For Houston, see R. G. Fryer, Jr., "Injecting Charter School Best Practices into Traditional Public Schools: Evidence from Field Experiments," *Quarterly Journal of Economics* 129, No. 3 (2014): 1355–1407; for Chicago, see R. Ander, J. Guryan, and J. Ludwig, "Improving Academic Outcomes for Disadvantaged Students: Scaling Up Individualized Tutorials," Policy Proposal 2016-12, The Brookings Institution, March 2016. https://www.brookings.edu/research/improving-academic-outcomes-for-disadvantaged-students-scaling-up-individualized-tutorials/

[8]H. S. Bloom and R. Unterman, "Can Small High Schools of Choice Improve Educational Prospects for Disadvantaged Students?" *Journal of Policy Analysis and Management* 33, No. 2 (2014): 290–319.

[9]A. Cheng, C. Hitt, B. Kisida, and J. N. Mills, "'No Excuses' Charter Schools: A Meta-Analysis of the Experimental Evidence on Student Achievement," *Journal of School Choice* 11, No. 2 (2017): 209–238.