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Report # 63

Class Size Matters

July 2004

Class Size & Learning

Is Smaller Better?

Mounting Evidence Says, Yes, Class Size Matters

When educators and policymakers debate ways to improve student achievement in school, reducing class size is often at the top of their list. A growing body of research evidence suggests that class size matter when it comes to improving student performance.

Questions remain, of course. Educators still lack a theoretical understanding of how class size affects student performance. But the most scientifically-reliable evidence is telling them that children benefit when class sizes are reduced and the benefits, in some cases, are both immediate and long-lasting.

Nearly every state has at one time considered legislation to help schools reduce class size. More than 20 states have adopted such laws. In 1999, federal legislation was passed to help schools hire 100,000 qualified teachers to reduce class size in first through third grades to a national average of 18 students per class. In Pennsylvania, pending legislation offers certain school districts incentives to reduce class size.

Supporting Evidence

In the public debate over class size, the crucial question is whether smaller is better. Mounting evidence suggests students benefit when class sizes are smaller. For example:

- An analysis combining the findings of 77 studies on class size and achievement reported that small classes are associated with higher achievement at all grade levels and major benefits were seen in classes

with fewer than 20 students.

- A review of 100 class size studies reported that the clearest evidence that smaller classes benefit children is found in the primary grades and that smaller classes benefit disadvantaged and minority students in particular.
- A study using data from more than 800 Texas school districts and more than 2.4 million students reported that in first through seventh grades, district-wide student achievement fell when the student/teacher ratio increased above 18 to 1.

Not all studies point to clear cut benefits. Smaller classes were not found to have much of an effect on student performance in an analysis of trend data from the 1950s to 1986, which found no consistent relationship between class size and standardized test scores.

But such analytical studies are not

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the most reliable way to measure the effects of class size. Their shortcomings include relying on student/teacher ratios as a measure for class size rather than actual size, grouping the data for all grade levels together, and using data that represent student achievement at the school level or using school district average scores rather than the scores of individual students placed in larger or smaller classes.

Recently, several carefully-controlled studies have looked at reducing class size and offer more reliable data on the effectiveness of such policies. These studies take a more rigorous approach that pays attention to the specific experiences and outcomes of children in smaller classes.

Project STAR

One of the largest and most thoroughly investigated class size experiments is Project STAR in Tennessee.

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In Project STAR, students in the smaller classes outperformed students in larger classes, regardless of whether or not the teachers in larger classes had aides to help them. Later studies suggest these gains were long-lasting.

Project STAR began in 1985 as a longitudinal study of kindergarten, first-, second-, and third-grade in Tennessee. Classes of 13-17 students were compared with classes of 22-26 students, both with and without an additional instructional aide in the larger classes.

The project embraced the essential features of a controlled research experiment designed to produce reliable evidence about the effects of intervention. It included 79 schools, more than 300 classrooms, and 7,000 students. Students were studied for four years.

Students in the small classes gained in a number of areas.¹

- Smaller class students substantially outperformed larger class students on Stanford Achievement Tests and the curriculum-based Basic Skills First test – regardless of their race or whether they were from urban, suburban, or rural schools.
- The positive achievement effect of small classes on minority students was double that for other students initially and about the same later.
- Fewer students in the smaller classes were held back a grade and students' special needs were more likely to be identified early.
- There were no significant differences in academic achievement for students in larger classes with or without an added instructional aide.

Children in smaller classes during the early grades continued to do well after they returned to normal-sized classes. In fourth grade, for example,

students from the smaller classes still outperformed the students from the larger classes in all academic subjects. They were also better behaved.²

Wisconsin's SAGE Program

Other major class size experiments also report promising outcomes.

In Wisconsin, the goal of the Student Achievement Guarantee in Education (SAGE) program is to have student/teacher ratios no greater than 15 to 1 in kindergarten and first and second grade classes. Smaller classes were phased beginning in 1996-1997. Outcomes were studied comparing students in the smaller classes to similar students in other classrooms. Several important findings were reported.³

- First grade students in the smaller classes performed consistently better than comparison students in mathematics, reading, language arts, and total scores for the Comprehensive Test of Basic Skills.

- The achievement gap narrowed between white and African-American first-grade students who were in the smaller classes, but widened among white and African-American students in larger classes.
- In second grade, achievement among students in small classes remained higher than that of students in larger classes. But the difference did not increase substantially.

Unlike Project STAR, smaller classes in SAGE were implemented with other changes, including use of a rigorous academic curriculum, before- and after-school activities for students, and professional development for teachers.

A second-year evaluation suggests, however, that the gains are due largely to smaller class size and that the other changes have not had a significant impact on student achievement.

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references

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¹ Achilles, C.M., Nye, Zaharias, J.B., Fulton, B.D., & Cain, C. (1996). Education's Equivalent of Medicine's Framingham Heart Study. Washington, DC: ERIC Clearinghouse. ED 402677. See also Mosteller, F. (1995). The Tennessee study of class size in the early school grades. *The Future of Children*, 5 (2), 113-127.

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OCD Co-Directors: Christina J. Groark, PhD.; Robert B. McCall, PhD.

background Editor: Jeffery Fraser, e-mail: jd.fraser@att.net

University of Pittsburgh Office of Child Development, 400 N. Lexington Avenue Pittsburgh, PA 15208; (412) 244-5447; fax: (412) 244-5440

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