



ISSUE BRIEF

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October 2000

CLASS SIZE

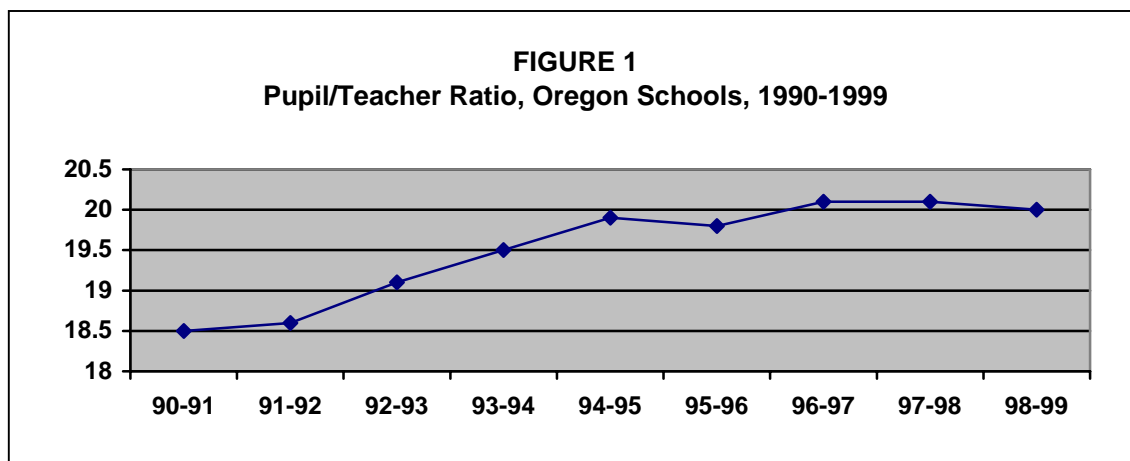
The Small Classroom debate

Reducing the number of students in classrooms is an idea that has gained increased attention during the past few years. Smaller classes are a perennial issue for educators; a recent poll showed that 88 percent of teachers believe smaller classes is the reform most likely to have a positive impact on student achievement.¹ It would seem that many government officials agree, as class size reduction has been touted recently as a goal by several state chief executives, including Governors George Pataki of New York and Gray Davis of California. At the federal level, President Clinton has designated more than \$1.2 billion to hire up to 100,000 new teachers for that very purpose. Here in Oregon, efforts have been made in both the legislature and by ballot initiative to address overcrowded classrooms, although no such measure has yet been passed.

The positive impact of reducing the number of students in classrooms would appear to be obvious. With fewer students, teachers are able to better individualize their teaching to meet student needs. However, many disagree that reducing class size will achieve the results its supporters suggest, and is not worth the enormous expense. The primary problem with implementing a comprehensive program of class size reduction is cost. Districts nationwide are already experiencing difficulty in maintaining current levels of service in aging facilities, and a significant reduction in the number of students per classroom requires both more teachers and more classroom space. Critics of class size reduction believe that any benefits derived from smaller classes can be achieved more economically through tutoring or direct instruction.

How crowded ARE classrooms, anyway?

Estimating the exact number of students assigned to each classroom is difficult, as state and federal agencies do not typically gather such data. The indicator most often used is pupil/teacher ratio, dividing the number of students by the number of licensed staff. Such indicators are, at best, rough estimates of the actual classroom environment, as they do not take into account the smaller classrooms for special education programs, nor do they consider that teachers at the secondary level spend portions of the day in preparation periods. Thus, pupil-to-teacher ratios underestimate the size of actual classes.



The 1994-95 Oregon Report Card indicated that although the pupil/teacher ratio in the state was 19.9:1, classes of 30 or more students were common. And, as Figure 1 shows,² the number of students per teacher has increased since then. Class size varies from district to district, based upon available funds, classroom space, and whether enrollment in the particular area is rising or declining.

How does Oregon compare to other states?

As measured by the aforementioned pupil-teacher ratio, Oregon ranks 47th out of 50 states and the District of Columbia. It should be noted that of the ten states with the highest pupil-teacher ratio, seven are in the western United States, with Nevada (46th) and Idaho (43rd) joining the states listed at the bottom in Table 1. Thus, while Oregon fares poorly compared to the nation as a whole, it is relatively equal to its neighbors.

1.	VERMONT	12.8
2.	MAINE	13.2
3.	MASSACHUSETTS	13.8
3.	NEW JERSEY	13.8
5.	RHODE ISLAND	13.9
	U.S. AVERAGE	16.5
47.	ARIZONA	20.0
47.	OREGON	20.0
49.	WASHINGTON	20.1
50.	CALIFORNIA	21.0
51.	UTAH	22.4

NCES estimates that student enrollment growth will continue in all western states (except Montana) through the next decade, although Oregon's rate of growth will be the slowest at 2 percent. The resulting competition for educators will make it increasingly difficult for Oregon to recruit and retain qualified teachers.

What are the benefits of small classes?

Those who support efforts to reduce the number of students per classroom suggest that several benefits can be derived from doing so.

- Teachers have more time to spend with each student one-on-one, providing a better environment for learning and allowing a greater range of instructional techniques.
- Teachers spend less time on disciplinary matters and more on instruction.
- Smaller classes increase the morale of students, leading to lower rates of absenteeism and fewer dropouts.
- Teacher morale is enhanced by smaller classes, as reduced workloads and stress lead to a reduction in teacher attrition.
- Reduced workloads can enhance teacher quality by allowing more time for preparation.
- Smaller classes lead to higher achievement in reading and mathematics for minorities, the economically disadvantaged, and those with lower academic achievement.
- Students who participate in small classes in the early grades can maintain the advantage gained even after moving into more crowded classes in later grades.
- Student test performance is often significantly higher in smaller classes than in larger ones.

A consensus of researchers indicates that the benefits of smaller classes are most apparent when classes are reduced to between 15-20 students per teacher. Also, the benefits of smaller classes are most pronounced in younger students, particularly those in kindergarten through grade 3. Some suggest that this is because children in early grades are becoming acquainted with the classroom environment, a process made easier when teachers have more time to assist in socialization.⁴

What are the costs of class size reduction?

Accomplishing a significant reduction in class size is an expensive process. The first step would be to hire a large number of additional teachers. President Clinton has designated \$1.3 billion for Fiscal Year 2000 to hire additional teachers nationwide, from which Oregon will receive \$12,533,025.⁵ However, the amount will only provide for approximately one additional teacher per school district in Oregon.⁶

The Confederation of Oregon School Administrators (COSA) conducted a survey in 1998 to estimate the cost of a statewide class size reduction program. It instructed the superintendents of all 199 school districts to estimate the financial cost of a state law mandating that classes in grades K-3 have no more than 20 students, grades 4-5 no more than 25, and grades 6-12 no more than 27. Information provided was extrapolated to estimate a statewide annual cost of \$124 million for 3,148 new teachers.

Even if the money is available, it is unclear whether there is a sufficient pool of qualified teachers to fill the numerous openings being created by class reduction efforts throughout the nation. Competition between states and districts for competent teachers may also drive salaries higher, further increasing the cost of hiring additional staff.

In addition to teachers, the other requirement of smaller classes is to increase the number of available classrooms. This requires a school district to either construct additional classroom space or acquire portable classrooms, both at significant cost to districts. The same COSA study estimated an additional one-time cost of \$672 million to construct the classroom space necessary for reducing classes to the desired level.⁷

What has the research shown?

Both proponents and opponents of reducing class size have found ammunition for their causes in numerous studies performed and pilot programs instituted throughout the United States during the past several years. While some of the early studies focused upon the impact of class size reduction at all levels, most recent efforts have narrowed the focus to lower grades, primarily K-3.

The first large-scale consideration of the effects of reducing class size was performed by **Glass and Smith (1979)**.⁸ They analyzed the results of 77 different studies regarding the effect of class size reduction on student achievement and found that students at all levels show enhanced achievement when placed in smaller classes, especially in classes with fewer than 20 students.

Robinson and Wittebols (1986)⁹ reviewed over 100 studies on class size through a 'cluster analysis', where similar studies were considered together. They found that reducing class size has the greatest impact in the early grades (K-3) and when teachers alter their instructional methods to take advantage of the new environment.

Odden (1990)¹⁰ analyzed the class size literature to formulate policy alternatives for states considering class size legislation. He recommended that, given the enormous cost of lowering the pupil-teacher ratio, states should consider targeted class size reductions in areas where it was most likely to lead to significant improvement in achievement. Odden concluded that such targeted reductions, when used in tandem with other changes in school and classroom organization, were the only cost-effective way to affect positive change through class size reduction.

Welingsky (1997)¹¹ analyzed data from three national databases to determine the impact of class size reduction on fourth and eighth grade student achievement. He found that smaller classes had a positive impact on fourth grade math scores, while for eighth

graders smaller classes improved the classroom environment, which consequently benefited student performance. Welingsky noted that the students whose performance was most enhanced by class size reduction were those who were lowest with regard to socioeconomic status.

Perhaps the most prominent study in opposition to the class size reduction movement was performed by **Hanushek (1998)**,¹² who asserted that many studies lauding the benefits of class size reduction overstate its impact. He points out that the average class size has been dropping for decades, without any corresponding increase in student performance. Through an econometric analysis he “confirms the general lack of any achievement results from smaller classes.”

Where has class size reduction been implemented so far?

Twenty states have undertaken class size reduction programs for grades K-3 in one form or another: Alabama, California, Florida, Illinois, Indiana, Iowa, Louisiana, Maine, Maryland, North Carolina, Nevada, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, and Wisconsin.¹³ Some of the most notable programs are discussed below.

The first large-scale, albeit unscientific, effort at class size reduction was Indiana’s **Prime Time Program**.¹⁴ The state’s legislature allocated funds to reduce class size in grades K-3 to 18 students or less. Because the program was not well controlled it achieved mixed results. However, analysis indicates that the students who attended smaller classes showed improvement in reading scores, with smaller levels of improvement in math scores.

The most widely cited class size reduction program has been **Tennessee’s Student-Teacher Achievement Ratio (STAR)** and subsequent followup projects.¹⁵ Beginning in 1985 and continuing for four years, students in over 300 classrooms in kindergarten and first grade were randomly assigned to one of three classroom types: small classes with between 13-17 students, regular-size classes with between 22-25 students, and regular classes with a full-time instructional assistant. Students were assigned randomly to the three cohorts and their academic performance was compared over the duration of the program. As a whole the students in small classes exhibited significantly higher scores on two separate tests of math and reading proficiency, with minority students showing dramatic gains at the beginning.

The second project, the **Lasting Benefits Study**, designed to track the later performance of students in all three STAR cohorts, found that students who had been in small classes in grades K-3 retained the academic advantages they had gained over students who had been taught in regular classrooms. It was also discovered that the small-class cohort students exhibited better behavior. Furthermore, the study showed that these advantages were maintained as late as the eighth grade.

Tennessee’s third study, **Project Challenge**, targeted 17 of the poorest districts in the state for class size reduction. Beginning in 1990, Project Challenge achieved dramatic gains in academic performance, with participating students improving from far below average to above average. Participating schools rose from an average rank of 99 (out of 139) to 78 in reading, and a rank of 85 to 56 in mathematics.

Wisconsin implemented its **Student Achievement Guarantee in Education (SAGE) Program**¹⁶ at the start of the 1996-97 school year. Started as a pilot program, districts could apply for five-year grants, which the state awarded primarily on the basis of the

number of low-income pupils enrolled and the overall rural/urban balance of schools participating in the program. In participating schools classes in the grades for which the grants are awarded (may include grades K-3) are reduced to 15 or fewer students. The grants also stipulate that schools shall remain open for community and social service activities, that professional development programs be developed for teachers, and that a rigorous curriculum be developed to improve academic achievement.

Following the first year of SAGE, students participating in the program showed improvement in reading, language arts, math, and overall, with low-income students showing the greatest improvement. A recently published analysis of SAGE,¹⁷ however, makes several conclusions that question the impact of the program. Specifically, the report asserts that the program's smaller classes in grades 2 and 3 have had little or no impact, that the program has virtually no effect on students who are not African-American, and that the gains made by students who do show improvement in SAGE are relatively meager. The report recommends a serious re-evaluation of the program and suggests other ways to improve student performance, including improving teacher quality.

California's **Class Size Reduction (CSR) Program**,¹⁸ instituted in 1996, was created to reduce what had been the largest average class size in the nation; in 1995 California had an average of 28 students per classroom. Implemented rapidly, CSR had placed 92 percent of California's K-3 students into classes of 20 or fewer. Students in these grades have received additional individualized instruction and have shown a small positive gain in achievement, which persists once they re-enter larger classes in grade four. However, due to a teacher shortage, teacher qualifications have fallen, especially in elementary schools and classrooms that serve many English as second language (ESL) and special education students. A study of instructional methods has also shown that teachers in smaller classes have not changed appreciably the methods they use, nor have they increased the amount of subject material they cover. It should be noted that no state has undertaken such a large effort to reduce the number of students per classroom and that California may be able to effectively address some of the drawbacks seen thus far.

What are some alternatives to reducing class size?

Because class size reduction programs such as California's CSR are extremely expensive in both the short and long term, and carry with them side effects such as reduced teacher quality, many policy analysts have considered alternative methods to achieve higher student performance.

- Hiring additional instructional assistants or soliciting parental volunteerism assists teachers with classroom discipline and grading and allows them more time to work with students one-on-one or in small groups.
- Team teaching provides similar benefits as instructional assistants, with the added benefit that both teachers are trained and certified, albeit working with a larger group of students.
- Block scheduling permits a school to reduce class size without hiring as many additional teachers or finding additional classroom space. However, block scheduling requires students to attend classes either early in the morning or into the evening, and it places the additional strain of longer days on teachers.
- Tutoring students in need of extra help is considered by some to be a cheaper and more feasible alternative to smaller classes.
- Increasing training and professional development for teachers has been shown to have a positive impact on student learning. Paradoxically, implementation of the CSR program has coincided with a drop in teacher qualifications.

- Tying teacher pay to student performance, according to some analysts, provides students with better instruction and weeds out ineffective teachers.
- Charter schools are considered an option because, among other things, they can sometimes provide lower student/teacher ratios than the public schools in their district.

Is there a future for class size reduction in Oregon?

The citizen-led movement Committee For a Little Class sought to put a class size reduction measure on the 1998 ballot but decided otherwise when several state legislators indicated they would be introducing legislation to address class size in Oregon schools. The measure would have limited classes in grades K-3 to 20 students or less, grades 4-5 to 25 students or less, and grades 6-12 to 27 students or less. Seven bills related to class size were introduced during the 1999 Legislative Session: SB 102-A, SB 447, SB 706, HB 2009, HB 3155, HB 3479, and HB 3562. Of the seven, SB 102-A and SB 447 were given a “do pass” recommendation by the Senate Education Committee but died in the Joint Ways and Means Committee. None of the other five received a hearing.¹⁹

In 1997, then-Speaker Lynn Lundquist created the Legislative Counsel on *The Oregon Quality Education Model* and assigned to it the task of envisioning what the ideal school should look like and how much it would cost to provide such a school. The prototype schools described in the Quality Education Model²⁰ set pupil-teacher ratios at 20:1 for elementary schools, 29:1 for core academic courses in middle and high schools, with an additional 1.5 FTE in middle school and 3.0 FTE in high school for math, English, and science courses. The members of the House Special Committee on the Education Model Review, appointed by Speaker Lynn Snodgrass, listed reducing class size as their #1 priority.

The decision whether to implement class size reduction will continue to be debated in legislatures throughout the United States in the near future. For now, the evidence presented by those who support and those who oppose smaller classes leaves the matter in the gray area of deciding whether the benefits that can be gained are worth the cost of implementation.

¹ “Here to Stay: Standards Based Reform is Not Just Another Fad-Its Alive And Well and Living in the Classroom.” *American Teacher*, December 1999/January 2000.

² Oregon Report Card 1998-99, pp. 21-22.

³ NCES Statistics In Brief, June 2000. <http://www.nces.ed.gov>

⁴ Finn, Jeremy D. (1998). Class size and students at risk: What is known? What is next? Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Institute on the Education of At-Risk Students.

⁵ U.S. Department of Education, *Class Size Reduction Program*, June 2000 press release. <http://www.ed.gov/offices/OESE/ClassSize>

⁶ Oregon Department of Education. *School Finance*. 1999.

⁷ “Class Size Cost Survey”, undated COSA memo, 1998.

⁸ Glass, Gene V., and Mary Lee Smith. "Meta-analysis of research on class size and achievement." *Educational Evaluation and Policy Analysis* vol. 1, #1, 1979.

⁹ Robinson, Glen E. and James H. Wittebols. (1986). Class size research: A related cluster analysis for decision-making. Arlington, VA: Education Research Service.

¹⁰ Odden, Allan. “Class Size and Student Achievement: Research-Based Policy Alternatives.” *Education Evaluation and Policy Analysis*, vol. 12, #2, 1990.

¹¹ Wenglinsky, Harold. When money matters: How educational expenditures improve student performance and how they don't. Princeton, NJ: The Educational Testing Service, Policy Information Center. 1997.

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- ¹² Hanushek, Eric. "The Evidence on Class Size" , Occasional Paper Number 98-1. 1998. W. Allen Wallis Institute of Political Economy, University of Rochester.
- ¹³ Education Commission for the States. *State Class Size Reduction Measures*. June 1999. <http://www.ecs.org/ecs/ecsweb.nsf/>
- ¹⁴ United States Department of Education. *Reducing Class Size: What do We Know?* March 1999. http://www.ed.gov/pubs/ReducingClass/Class_size.html#initiatives
- ¹⁵ Mosteller, Frederick. "The Tennessee Study of Class Size in the Early School Grades." *The Future of Children*, vol. 5, #2, 1995.
- ¹⁶ Wisconsin Department of Public Instruction. *First-Year SAGE Report Shows Promising Increases in Student Learning*. December 1997.
- ¹⁷ Wisconsin Policy Research Institute. *The Costs and Benefits of Smaller Classes in Wisconsin: A Further Evaluation of the SAGE Program*. September 2000.
- ¹⁸ CSR Research Consortium. *Class Size Reduction in California: The 1998-99 Evaluation Findings*. June 2000. <http://www.classsize.org/summary/98-99/index.htm>
- ¹⁹ Policy, Research, & Committee Services. *The House Special Committee on the Education Model Review*. March 2000.
- ²⁰ Policy, Research, & Committee Services. *The Oregon Quality Education Model*. June 1999.