

Focus on Class Size Reduction: Smaller Classes Aim to Launch Early Literacy

by Joan McRobbie

With the school year in full swing, California parents and teachers are overjoyed to see smaller classes at last in the primary grades. They are also confronting firsthand the challenges and trade-offs of implementing the state's new \$771 million class-size reduction opportunity. Is smaller better if it means your child will be taught by a brand-new rather than veteran teacher? Is it preferable to teach fewer children in a makeshift space or more in a standard classroom?

Despite many such questions, optimism reigns. By shrinking kindergarten to third-grade classes from an average of 29 students down to 20, the new law offers long-awaited support aimed at jump-starting learning for the state's youngest students. Early mastery of reading and math fundamentals can make or break a child's later success in school and in life. And California's abysmal overall reading performance last year¹ was a critical wake-up call, in part about the effects on literacy of the state's increasingly overcrowded classrooms.

Complexity Versus the Push to Act Fast

But school leaders rushing to meet deadlines for taking advantage of the new resources have found themselves in a maze of personnel and facilities logistics involving tough, often emotionally-charged choices (see box on page 2: A Rubik's Cube of Logistics). As they each turn, they are striving to keep a clear eye on what they really want to achieve with this unprecedented experiment.

Getting the numbers down is merely a means to an end. The real goal is improving K-3 education, especially in the area of literacy. This requires seeing class-size reduction as one key piece of a comprehensive, creative approach that corrals all resources, including new reading money (see box on page 3: A Look at the Law), and bases all decisions on what, in the long run, will produce the best possible learning environment for children. It especially calls for equipping teachers with the knowledge and skills they need to make the most of the smaller numbers.

The new policy defines California once again as a laboratory; no experiment of this magnitude has ever before been attempted, never mind in so short a time frame. Adding in the \$200 million allocated for facilities (see box on page 3: A Look at the Law), critics see a nearly billion-dollar leap into the unknown, with insufficient evidence that the move will lead to achievement gains. Moreover, they say, its impact may be difficult to know, since no funding for evaluation has yet been allocated.

Among educators is a concern about a backlash against the schools if test scores don't immediately rise. Public impatience to get the numbers down fast is at odds with the thoughtful, methodical approach warranted by the issue's complexity.

► Focus on Class Size
Reduction, 1996

A Rubik's Cube of Logistics

The immediate twin challenges for schools striving to take advantage of the new law involve personnel and facilities.

Personnel challenges. To fully implement the K–3 reform, California's schools will need to add nearly 20,000 new teachers. Just 5,000 are typically credentialed by the state each year. Recruiters have lured teachers from other districts, states and even Mexico; from the ranks of temporaries, retirees, stay-at-home mothers with credentials, from the AmeriCorps, Troops-to-Teachers and Teach-for-America programs; and from their own substitute pools, a drain that's affecting staff development time and causing grave concern as flu season approaches.

Desirable districts have hired with relative ease. Those with image problems—which tend also to be large and, thus, have the greatest hiring needs—quickly ran out of highly qualified applicants. They are filling the gap with novices, students and other trainees. Legislation rushed through in late summer makes it easier for districts to start their own internship programs; college graduates who have passed the state's teacher qualifying examination can earn emergency credentials after 120 hours, or roughly three weeks, of on-the-job training.

Facilities challenges. The state's schools need about 8,000 new classrooms just for first grade. Portable classrooms seem an obvious solution, but manufacturers normally make 2,500 a year, and orders are expected to exceed 15,000. Another issue is affordability: The state initially provided some \$25,000 apiece for new portables, each of which costs \$28,000 to \$54,000. Although the State Allocations Board has added \$95 million to the pot, this is money taken away from repair projects, and the total still falls far short of what's needed. Some schools, having already compromised playgrounds, can't even consider more portables. Meanwhile, most have reassigned or reconfigured existing space: libraries, science labs, childcare centers, special education classrooms, computer labs, music rooms, faculty lounges and even stages in multi-purpose rooms have become primary classrooms.

Some schools are teaming two teachers in one room with 40 students (though this won't be allowed in 1997–98). Particularly crowded schools are trying multitrack, year-round programs and/or split or overlapping schedules. A few are resorting to the expensive option of transporting students to other schools. Some are striving for fewer than 20 students, concerned that transiency could cause spill-over and, thus, loss of funding. (A first-grader who moved to Sonoma in October must attend across town, since the school two blocks away was at the class-size limit.)

These accommodations raise troubling questions: Will programs like science and music suffer? Are libraries dispensable? Most fundamentally, if—as research shows—the primary grades are the hardest to teach, will a large number of novice teachers be up to the job? As Stanford's Mike Kirst has said, "My underlying concern is, if you have poor (teacher) qualifications, what does that do? Are you better off with a poor teacher with 20 students or a really good teacher with 30? The research doesn't tell you that."⁹

Added to this brain teaser is baby boomlet-caused enrollment growth. In one astounding example, Los Angeles projected some 8,000 additional students this year; that number may instead be 25,000. Policy Analysis for California Education (PACE) reports that such growth, combined with attrition and retirement, will create a need for 207,000–259,000 new teachers by 2004.¹⁰ And that's without taking class-size reduction into account.

Such tensions aside, educators believe in this reform and are committed to making it a winner for kids. Parents, they say, don't necessarily expect achievement miracles. But everyone anticipates a surge in the quality of daily life for children and teachers. California classrooms bulge with as many as 35 children, one in five not proficient in English, many affected by poverty. Lowering the numbers almost certainly will create new opportunities for children to thrive—academically, socially and emotionally.

A Look at the Law

California's class-size reduction law is the lion's share of a package of education legislation that included several bills focused on improving reading.

Major provisions of the class-size piece (SB 1777, amended by SB 1414; SB 1789-facilities):

- Allocates \$771 million of incentive funding for K–3 class-size reduction, plus \$200 million for related facilities costs. (In October, the State Allocations Board directed an additional \$95 million from bond funds intended for school construction to support the cost of purchasing portable classrooms.)
- Specifies \$650 per student to schools that reduce class size to 20 students or fewer in first grade, second grade, then either third grade or kindergarten. Stipulates annual increases for inflation. Intended as part of the schools' ongoing funding base guaranteed by Proposition 98.
- To qualify for funding for 1996–97, schools must apply by November 1, 1996, and complete the reductions by February 16, 1997. (In the future, the application deadline will be June 30 for the following year.) Schools reducing class size for half the day may receive \$325 per student.
- Using existing funds, districts must provide participating teachers with staff development, focused on individualized instruction and effective smaller-class teaching.
- If a reduced class rises above 20, the penalty will be loss of funding for that class (rather than loss of the district's entire allotment, as the law first stipulated).
- In 1996–97, schools may have 40 students in one room with two teachers. In 1997–98, each class of 20 must have its own room.
- Mandates evaluation in 2002; no appropriation as yet.

Major provisions of the companion reading initiative (AB 170, AB1504, AB3482, AB 3482; AB3075 and AB 1178-preservice):

- Allocates about \$80 per student for buying prescribed K–3 reading materials (though the materials will not be ready until 1997–98). Another \$13 million, plus some federal Goals 2000 money, will support a Teacher Reading Instruction Development program. Specifies leadership training for school board members, school administrators and teacher leaders.
- Establishes a new requirement for a preliminary teacher credential: demonstration of knowledge, skill and ability in reading instruction. Allocates \$6 million of Goals 2000 money to support preservice reading partnerships among school districts and teacher training colleges.



Wide agreement exists that the critical question at this point is not whether class size can make a difference but how and under what circumstances it does. That triggers other questions. Where are the priorities and what are the trade-offs as schools and districts act on the new reform? What strategies for implementation seem most promising? What gains can Californians, especially parents, reasonably expect as a result of this reform—and when?

Lessons from Research: Changing Instruction Is Key

Generally speaking, research confirms what virtually every parent and teacher believes: students are more likely to get a better quality education in small classes. For example, findings from Tennessee’s impressive statewide experiment, Project STAR² (the study that strongly influenced California’s governor and legislature), document that children in the early grades benefit from small classes, at least in reading and mathematics. The greatest gains seem to flow to low achievers and those from adverse socioeconomic backgrounds. And the benefits appear to last over time, even if children move on to larger classes after third grade.

Though researchers continue to debate the class-size issue, most agree on a couple of points:

- **There is no magic number.** No one knows what the optimal small class is. An often-cited 1982 meta-analysis of 77 studies³ concluded that the smaller the class, the greater the effect on the instructional process, on pupil affect and on achievement. But this study, like much other research, suggests that dramatic gains only accrue when classes shrink below 15. In Tennessee, small classes averaged 15. California’s new small classes are closer to Tennessee’s 22-25 control-group size.
- **Smaller classes don’t automatically lead to higher achievement.** The benefits are produced not just by lowering numbers but by also changing specific teaching and learning behaviors.⁴ The weight of evidence indicates that when such changes don’t accompany reduced class size, achievement gains are unlikely.

A telling example comes from Austin, Texas, where 15 schools with poor student performance each got \$500,000 a year for five years starting in 1989. All used the money to reduce class size. After four years, 13 schools still had extremely low performance and attendance. The other two schools showed dramatic gains. Only those two used smaller classes as an opportunity to change instruction. They adopted new curricula; changed to teaching methods focused on individual attention; mainstreamed students with disabilities into the regular classroom; increased parent involvement; and initiated health services that allowed many students their first trip to the doctor—an improvement that markedly bolstered attendance.

To Harvard economist Richard Murnane, the Austin example helps explain many teachers’ frustration with studies that have concluded that class-size reduction doesn’t help. It does, he says, but only in schools able to use the resources effectively.⁵

Class-Size Reduction and Teacher Support Must Go Hand-in-Hand

The clear message is that schools have to be deliberate about using the opportunities created by smaller classes. Most important, class-size reduction and teaching must be considered together, particularly in light of the nearly 20,000 teachers expected to be hired under the new law (see box on page 2: A Rubik’s Cube of Logistics). It’s true that California’s primary classroom numbers

have long been among the highest in the nation, and the state's reading scores have dropped to among the lowest. If overcrowding is bad for learning, however, solutions that lead to inadequate teaching are unlikely to make things better.

What's more possible in smaller classes? Greater individual attention, better use of teaching methods and materials, better organization, more varied and imaginative activities, higher quality student assessment and a richer curriculum (see side box: Teaching and Learning in the Smaller Class). But simply putting children in smaller classes does not guarantee any of those improvements. In fact, research shows that many teachers—conditioned by large classes to keep things tightly controlled—don't change their methods or teaching styles when they shift to smaller classes. Change is difficult; habits die hard; and teachers may not know another way. Yet more of the same may result in little or no achievement gain—even if students and teachers are happier.

Administrators, curriculum specialists and teachers need to ask: How will instruction be conducted differently, from day one? How will we support teachers to do it? The new law requires staff development plans that support small primary-class teaching (see box on page 3: A Look at the Law). Such plans can capitalize on a huge morale boost: teachers believe they can now do the job; they have more energy and, thus, more capacity to learn best strategies for teaching reading and math. The best knowledge from research and practice urges that good staff development—especially now in California—be designed with the following points in mind:

Quick-fix trainings won't help

Staff development should be ongoing, school-based and geared to create a professional community where teachers find out together what works for their particular students. It should include inservice in such strategies as group work, peer tutoring and computer-assisted instruction. Emphasis should be on literacy; a number of districts have already set up reading inservice for all reading teachers, new and experienced. Program designers might do well to take ingredients from proven comprehensive reform models focused on the primary grades. (See appendix: Resources)

Teaching and Learning In the Smaller Class

What exactly does good small-class teaching look like?

A teacher teaching a large class may see little recourse other than using tightly structured, directive approaches (“Get in your seats now”; “Do pages 187 and 188”) to maintain control over student behavior. Rows and columns of desks are likely, since that's all the space allows. Students may require teacher permission to use the pencil sharpener or go to the bathroom. Boardwork assignments, workbook pages and weekly round-robin reading may recur with little variation. The routine may be dominated by large-group instruction, with the same work, pace and tests for all children.

As class size shrinks, other possibilities grow. The teacher can really get to know each child. He or she can individualize the lessons. The basics can be covered more thoroughly, with time for varied and creative enrichment activities. Extra classroom space can be used for a reading corner or learning center that gives students options, encourages peer interactions and helps develop decision-making skills and a sense of responsibility. Students gain time to discuss what they read. They can get instant feedback on a math problem from a teacher who moves around the room as they work.

This one-to-one interaction between teacher and student is the heart of the matter, says WestEd's Nikola Filby, a veteran researcher on teaching. The key is equipping teachers with the know-how to make the most of it. Smaller classes give the teacher the leeway to connect with each child, including that quiet boy in the corner. She can talk with him and—especially—listen, to see where his real strengths and difficulties lie.

California teachers need instructional strategies for diversity

A major challenge for early literacy is the state's critical shortage of bilingual teachers. Students come from a wide range of backgrounds, and many speak English as a second or third language. So primary teachers—new and veteran—need staff development not only in reading instruction but also in language acquisition and ways to communicate across languages and cultures. The 20-1 law only magnifies this need, since more classes won't necessarily result in more bilingual aides.

Teachers need to know how to identify and respond to learning problems

Smaller classes can mean a whole new day for kids with learning disabilities. With more time and expertise, teachers may be able to meet those children's instructional needs in the regular classroom, resulting in fewer referrals to special education. One district is already offering inservice that prepares teachers to recognize the characteristics of incipient reading disabilities and respond in preventive ways.

Brand-new teachers need to be paired immediately with strong veterans

All new teachers, but especially those with emergency credentials, require special kinds of help. Good models for providing it include the Beginning Teacher Support and Assessment program (see appendix: Resources), which gives newcomers practical help and constructive evaluation from senior teachers. San Francisco has designated certain schools as models, where new teachers—already coupled with mentors—can observe good primary reading and math instruction.

Smaller Classes Must Be Part of a Comprehensive Approach

The new law necessitates innovation, and hard thinking about ways to make the most of smaller classes is yielding promising ideas. Importantly, there is wide agreement on one imperative: Schools need to plan creatively and comprehensively, making small class size part of a bigger effort to improve instruction in the classroom. The starting place is a review of fundamental mission. What does this school (or district) aim to accomplish for its students? What, specifically, is its vision for primary grade education?

Decisions flow from there, and trade-offs are inevitable, since the state expects the reform to cost approximately \$125 more per student than what the state has allotted. That amount must be paid by the district. For big urban districts, the dip into their own pockets adds up to multi-millions.

A number of districts report that costs will run higher than state estimates—without even factoring in this year's enrollment surge due to the baby boomlet (see box on page 2: A Rubik's Cube of Logistics). To reduce all K-3 classes, therefore, may mean cutting other programs. Is that acceptable to the community? Might a program cut at a given school be averted by slowing down K-3 implementation—taking care of first grade this year, but holding off on the other grades until alternative solutions can be created?

Addressing such questions requires a degree of patience not easy to find, as parents, teachers and others read news stories about the class-size reduction race and who's winning. The urge is to get caught up in that race and make hasty decisions. Tensions are compounded by misunderstandings (e.g., many believe—wrongly—that K-3 funding covers four grades) and by fear that the money

won't last, though analysts say class-size reduction is now part of California's long-term school finance picture.

The leadership challenge is to set a pace that enables comprehensive planning. Deliberations must include the sweep of issues: teacher preparation and inservice; the supply of mentor teachers; the impact of primary grade changes on upper grade programs, especially of bumping teachers down; teacher retention (seasoned teachers are needed as never before; urban districts, especially, must offer incentives to keep them); the impact on families of year-round, especially multitrack, scheduling; the effects on Title I and poorer schools; and negotiation with unions on virtually all of the above. Are zoning or geographic shifts possible that can allow some students from overcrowded schools to attend underenrolled schools? Can magnet and special school programs that draw students from across the district be placed in underutilized schools?

Promising strategies for addressing these issues include:

Ongoing community dialogue, especially about how to define and measure success

Ideas for creating an agreed-upon community agenda and timeline include:

Giving communication high priority

Avenues are needed for parents, teachers, school administrators and others to talk about implementation issues and work together to resolve the trade-offs of each course of action—loss of personnel (e.g., secretaries or other support staff), services, playground space or even resources for upper grade programs.

Clarifying expectations

Schools need to discuss with parents what success will look like to them. What do they expect will change with smaller classes—for students and for teachers? What will convince them that their children's education, especially in reading, is improving? How soon do they expect to see it?

Looking beyond test scores

Test scores are obvious points of focus, and school leaders are keenly aware of the absence of baseline testing data needed to demonstrate progress over time to the public. The Alameda County Office of Education is addressing this problem by creating an accountability task force that's pulling teachers together to talk and reflect on assessment of student work, develop rubrics for reading assessment by grade level, develop testing instruments and collect data—activities that are also professional development.

But in Nevada, where primary grade class-size reduction legislation passed in 1989, State Superintendent of Public Instruction Mary Peterson stresses the need for community attention on other kinds of progress indicators; test results don't tell the whole story. Nevada's preliminary evaluation showed mixed results on testing. But principals reported improvements in other areas, notably teacher-student interaction, monitoring of student work, feedback to students on progress, and small group and one-to-one instruction.⁷



Parents, educators and researchers also stress the importance of indicators such as attendance, special education referrals, teacher-parent interactions and level of behavior problems. Social and emotional factors, as well, are far from trivial—a child’s sense of attention from adults, her sense of herself as a learner and her belief that school is a welcoming place where she fits in and participates.

Imaginative use of new and existing resources

The planning process needs to include rethinking how resources are used. Ideas include:

Combining funds from all sources to leverage impact

Money from the new state reading program (see box on page 3: A Look at the Law) includes funding for a new curriculum that stresses reading, staff development and materials. These resources can be pooled with funds from various state and federal categorical programs—e.g., Title I, special education, migrant education, desegregation, economic impact and Healthy Start funds—to create small primary classes that minimize the need for pull-out programs because they allow all children to learn in class.

Focusing first on low-achieving schools

David Illig of the California Research Bureau points out that one of the more dramatic findings from Project STAR is the relatively large achievement gain for children in small, inner-city classes compared with that of children in small classes elsewhere.⁸ Moreover, he says, schools with disproportionately large numbers of minority and low socioeconomic status children are more likely to be low-performing. For strapped urban districts, these findings argue for targeting low-achieving schools first, so that available money is used where there is promise of greatest benefit. (Developments so far, however, indicate that such targeting may spark resistance from parents in other parts of the district.)

Setting up new kinds of collaborations to accomplish goals

Meeting new challenges related to hiring, facilities and staff development calls for cooperative effort. New directions for collaboration include:

Close relationships with higher education

The new legislation will have a huge impact on how California’s teaching force is hired and prepared. California is one of the few states requiring an undergraduate degree in a subject area plus a year’s teacher preparation to become certified. Now, however, with fewer restrictions on district issuance of emergency credentials (see box on page 2: A Rubik’s Cube of Logistics), the California State University (CSU) system—which trains some 60 percent of the state’s teachers—is besieged with requests from districts to set up internship programs.

CSU deans have committed to such actions as expanding internship credential programs, expanding career-ladder opportunities for paraprofessionals and working in partnership with districts to customize professional development programs. A statewide task force, including representatives from CSU, its Sacramento-based Institute for Education Reform and school districts, has formed to develop a system for recruiting and certifying teachers. The group will look at options such as



creating regional recruiting centers around the state as a more coherent way to tap the applicant pool and coordinate teacher preparation.

An example of a local collaborative is the newly formed Bay Area Reading Partnership, involving three universities, the Alameda County Office of Education and three districts. It aims to restructure preparation of reading teachers at the universities and induction and inservice processes at the districts.

Innovative teaming arrangements

In another model of a university-district partnership, two education faculty members from San Francisco State University (SFSU) share the principalship at nearby John Muir Elementary School. Last year, the principals began recruiting SFSU minority teacher candidates to serve as interns at the school. Needy urban children, many of whom are Latino or African American, gain role models; prospective teachers gain experience. Those involved credit the program with helping remove John Muir school from the district's "troubled" list.

Community and cross-district partnerships

On the facilities side, Oakland, for example, is seeking donated space from churches and nonprofits (and working to balance code requirements with the need for classroom space). Collaborations may also form around reopening closed schools. While one district alone may not be able to afford the associated costs (refurbishing buildings, extra staffing, loss of rent from current tenants), several districts together could, perhaps using the school as a magnet.

Looking Ahead

The implications of rapid class-size reduction in California are far reaching. Though the full extent of the new law's impact won't be known for years, it's already apparent that this reform touches virtually every aspect of the state's education system.

Issues to be watched include the impact on other reforms. Schools channeling money into class-size reduction, for example, may not have sufficient funds to continue participating in highly effective reform networks. Future legislative action is also a critical factor. The state now anticipates another boom year with a surplus of some \$1.6 billion over its projected budget. Will lawmakers decide to use that money to push class shrinkage up the grades?

Other fast evolving issues relate to equity. Some districts face a major fiscal challenge in bringing the numbers down; others, with smaller classes already and ample space to grow, see the \$650 per child as a windfall. As the reform plays out, will it widen the gap between the haves and have nots?

Despite the unknowns, most observers agree that the road ahead for California's school children looks brighter than it has in many years. The new law brings schools the biggest infusion of funds since Proposition 13 initiated nearly two decades of slow starvation. A bend has been turned. That's clear to the Conejo Valley principal who happily did paper work into the wee hours in August; he was hiring new teachers for the first time in a decade. It's clear to the Long Beach teacher who says, "Now I can finally do my job." The systemwide challenge is translating their delight into solid achievement gains for kids.

Resources

County Offices of Education. For support on all aspects of class-size reduction. Of note: San Diego County Office has issued a manual that addresses funding, facilities, personnel, instruction and professional development. Contact Jim Esterbrooks, 619-292-3500; Web site: www.sdcoe.k12.ca.us. Butte County is coordinating with CSU Chico on the range of staff development issues. Contact Michele Garside, 916-538-7237.

California Department of Education. For general class-size information, call 916-657-2926. Web site: goldmine@cde.ca.gov

California Legislature. For trailer legislation updates, see the "Sacramento Education Legislative Letter", published weekly in EdCal, the newspaper of the Association of California School Administrators. Call 916-444-3216. For legislative information, see state senate and assembly Web sites: www.sen.ca.gov and www.assembly.ca.gov. For searchable bill information, see Legislative Analyst's Office and Legislative Counsel Web sites: www.lao.ca.gov and www.leginfo.ca.gov.

EdSource. For clear, nonpartisan education information including the 1996 EdFact "California's New Class Size Reduction Law"; detailed information about the state's 1996–97 budget for schools; reports on school finance. Call 415-857-9604 or email EdSource@AOL.com.

Primary Grade Reform Models. "Success for All," developed at Johns Hopkins University, is a comprehensive school restructuring program focused on prevention and early intervention. It aims to have all children reading at or above grade level by end of third grade. Contact Meg Livingston, 310-985-9175. "Accelerated Schools," developed at Stanford, seeks to improve educational success by building on student strengths, empowering the school site and achieving a unity of purpose. Call Claudia Sprig, 415-723-0840. The Northern California Comprehensive Assistance Center supports schools in comprehensive school-change efforts to continuously improve teaching, learning and student achievement. In implementing the Improving America's Schools Act, it is creating a forum of school leaders to address key concerns, including class-size reduction. Call Ralph Baker or Rose Marie Fontana, 800-64-LEARN.

Staff Development Models. The California Staff Development Council is a statewide membership organization focused on helping teachers educate diverse student populations. Links members to collaboratives and to information on design and implementation of staff development programs. Call Karen Kent, 415-802-5348. The Beginning Teacher Support and Assessment program pairs beginning teachers with veterans who know their students and schools; veterans gain opportunities to reflect on their own practice. Call Amy Jackson, 415-565-3058.

Related WestEd Publications. *The Intern Teacher Casebook* Judith Shulman and Joel Colbert, 1988, 82 pages (first person accounts of teacher dilemmas); *Diversity in the Classroom: A Casebook for Teachers and Teacher Educators*, Judith Shulman and Amalia Mesa-Bains, 1993, 117 pages (first-person accounts of teaching dilemmas in multilingual, multicultural and multiethnic classrooms); *Charting the Course Towards Instructionally Sound Assessment*, Kate Jamentz, 1994, 136 pages (a California Assessment Collaborative report focused on creating alternative assessments and using them to improve student performance). For a catalog, email info@WestEd.org.

Endnotes

1. Jay R. Campbell, et al, NAEP 1994 Reading Report Card for the Nation and the States: Findings from the National Assessment of Educational Progress and Trial State Assessment, Washington, DC: National Center for Educational Statistics, 1995.
2. Deborah Anderluh and James Richardson, "Class Reductions: Tough Assignments for Schools," *Sacramento Bee*, August 18, 1996. (News stories from other major California dailies also provided background.)
3. David Cohen and Himamauli Das, *The Need for Teachers in California*, Berkeley, CA: Policy Analysis for California Education (PACE), 1996.
4. Elisabeth Word et al., *The State of Tennessee's Student/Teacher Achievement Ratio (STAR) Project*, Technical Report, 1985-1990.

David C. Illig, *Reducing Class Size: A Review of the Literature and Options for Consideration*, Sacramento, CA: California Research Bureau, California State Library, 1996.

Frederick Mosteller, "The Tennessee Study of Class Size in the Early School Grades," *Critical Issues for Children and Youths*, vol. 5, no. 2 (Summer/Fall 1995):113-127.

Youssef Sanogo and David Gilman, *Class Size and Student Achievement: Tennessee's STAR and Indiana's Prime Time Projects*, Terre Haute, IN: Indiana State University, 1994.
5. Gene V. Glass, Leonard S. Cahen, Mary Lee Smith and Nikola N. Filby, *School Class Size: Research and Policy*, Beverly Hills, CA: Sage Publications, 1982.

Leonard S. Cahen, Nikola Filby, Gail McCutcheon and Diane W. Kyle, *Class Size and Instruction*, New York: Longman, 1983.

Gene Glass and Mary Lee Smith, *Meta-Analysis of the Relationship of Class Size and Student Achievement*, San Francisco: Far West Laboratory for Educational Research and Development, 1978.
6. Douglas E. Mitchell and Sara Ann Beach, *How Changing Class Size Affects Classrooms and Students* (Policy Brief), San Francisco: Far West Laboratory for Educational Research and Development, 1990.
7. Richard J. Murnane and Frank Levy, "Why Money Matters Sometimes," *Education Week* (September 11, 1996): 48, 36-37.

Deborah M. Kazal-Thresher, "Educational Expenditures and School Achievement: When and How Money Can Make a Difference," *Educational Researcher*, March 1993.
8. Peter Blatchford and Peter Mortimore, "The Issue of Class Size for Young Children in Schools: What Can We Learn from Research?," *Oxford Review of Education*, vol. 20, no. 4 (1994).
9. Mary L. Peterson and Keith Rheault, *The Nevada Class Size Reduction Evaluation Study 1995*, Carson City, NV: 1995.
10. Illig, *Reducing Class Size*.