

POLICY REPORT

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Spring 2000

INSIDE

When Does Small Class Size Help Student Achievement? 2

Teachers Report on the Benefits of Small Classes 3

Teaching Practices in Small Classes 5

The Costs of Reducing Class Size 8

Alternatives to Class-Size Reduction 11

Addressing Professional Development 13

Class-Size-Reduction Initiatives, by State 14

Designing a Policy 16

Class Size

Can School Districts Capitalize on the Benefits of Smaller Classes?

More than 20 states and the federal government have initiated efforts to reduce class size. Class-size-reduction (CSR) initiatives enjoy enormous public support and appeal to the common sense of parents and educators alike.

Until recently, class size in U.S. public schools averaged about 25 students. This is too large, some say, for teachers to give students the individualized attention they need to succeed. Initiatives at the state and federal levels have sought to lower the average class size to 15 to 18 pupils.

The Clinton Administration's Class Size Reduction Program is helping school districts hire 100,000 new teachers to reduce class sizes in the elementary grades to a nationwide average of 18 students. Congress raised the program's funding from \$1.2 billion this school year to \$1.3 billion in the 2000-01 school year, and the Department of Education estimates that 29,000 teachers have already been hired through the program.

States are spending an additional \$2.3 billion on their own CSR initiatives during the 1999-00 school year, and several states plan to spend more on CSR in the future.

Why the sudden interest in class size? The issue's political appeal is certainly one reason, but many states have turned to CSR as one strand of their efforts to raise standards for student

achievement. Research has found that smaller classes in the early grades promote effective teaching and learning.

While initiatives to reduce class size have been praised by many, others remain skeptical. Some policymakers and researchers believe the costs of reduction are prohibitively high and the money would be better spent to support other proven types of school reform. If districts hire the most qualified teachers and support them with ongoing professional development, class size becomes an irrelevant issue, say skeptics of the push toward smaller classes.

Other questions relate to how CSR initiatives are implemented, how to deal

While initiatives to reduce class size have been praised by many, others remain skeptical.

This *Policy Report* seeks to help policymakers:

- understand the benefits of CSR
- assess realistically its costs
- consider research-based alternatives
- make sure, when CSR is undertaken, that its benefits are realized in the classroom

with shortages of qualified teachers and classroom space, what teachers must do to take advantage of smaller classes, and what student outcomes can be expected from the reform.

Policy and fiscal issues aside, in many states the debate is no longer over whether class-size reduction makes a difference, but how and under what circumstances (Perez 1998, McRobbie 1998). How can your state or district best design a successful CSR policy?

Policy Report

Number 1, Spring 2000

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ERIC Clearinghouse on Educational Management

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When Does Small Class Size Help Student Achievement?

Studies over the last twenty years have provided researchers and educators with the opportunity to observe reduced-size classrooms and gather data on student achievement. Class-size reduction has been deemed successful when students show marked improvement in learning through formal evaluations.

Success is most likely for students in smaller classes under the following conditions:

- **When the student-teacher ratio is reduced significantly.**

No one is completely sure how small classes should be to maximally benefit students. Project STAR, a leading study from Tennessee, defined small classes as those with 13-17 students. Regular-sized classes were defined as those with 22 or more students. When tested, students in small classes consistently outperformed students in regular-sized classrooms (Pate-Bain, Achilles, and others 1992). The most notable student gains came from low-achieving students with impoverished socioeconomic backgrounds (McRobbie 1998; Illig 1996). In light of these results, many states have begun shrinking class size to 17-20 students per teacher.

Clearly, a drop from 35 students to 18 students is dramatic, and some specialists believe class-size reduction must be this substantial before significant student gains will be evident. Merely reducing class size from 25 down to 20 is an ineffective form of implementation.

- **When reduction initiatives are implemented in grades K-3.**

The most effective class-size reduction initiatives have focused

Class-size reduction has been deemed successful when students show marked improvement in learning through formal evaluations.

on the early grades. Project STAR focused on grades K-3. Similarly, California's Class-Size Reduction (CSR) initiative targets kindergarten through third grade.

When reduction initiatives are implemented in early grades, young students are more likely to get the extra attention they need to learn basic skills in reading, writing, and math. These students, research is now showing, will carry the effects of a small class with them throughout the remainder of their academic careers. Tennessee's Lasting Benefits Study, a followup to Project STAR, has found that the gains due to small classes were still evident in reading and math through grade 8. (Nye with Hedges and others 1999).

- **When certain services and technologies are available to achieve the small-class effect.**

When well-trained teachers employ effective instructional techniques, students achieve more. No organizational reform, smaller class size included, will substitute for high-quality teaching, as many studies have documented (McRobbie and others 1998). If

professional development that guides teachers in small-class instruction is used in conjunction with effective teaching practices, a strong curriculum, and smaller classes, researchers will be more able to examine the true effects of class-size reduction (Beall 1998; U.S. Department of Education 1998).

Teachers and students must have sufficient classroom space and access to materials and services. Some schools seeking to reduce class size have struggled with this issue, whereas others already have the resources available. In California, with the implementation of CSR, school districts have scrambled to accommodate more classes with fewer students, some-

VIEWPOINT

With [California's] class-size reduction program, and the fact that the waiting room of the marketplace of educators is languishing with dusty seats, you can bet the Sunday tithe that many poor, inner-city children are suffering through the dubious blessing of being taught in smaller classes by less-experienced teachers.... Poor teaching by the underqualified nullifies any potential benefits of smaller classes."

- Randy Ross,
Vice President, Los Angeles Annenberg Metropolitan Project

TEACHERS REPORT on the benefits of small classes

Teachers from around the nation who teach in smaller classes report the benefits of having fewer students in their classrooms. Overwhelmingly, they observe the following characteristics of smaller classes:

Within the curriculum, teachers...

- find that learning can take on more variety, breadth, depth, and richness.
- have more time for covering additional material and use more supplementary texts and enrichment activities.

When instructing, teachers...

- have a better handle on teaching materials, more organization, and more forms of creative instruction.
- have more opportunity for indepth teaching of basic content.
- use concrete materials to engage students in authentic learning experiences.
- have more opportunities for individualized interaction with students.
- complete basic instruction more quickly as students participate more and spend more time on task.
- devote more time to instruction and have to spend less time on classroom management.

While assessing, teachers...

- can use meaningful assessment tools.
- spend less time on paperwork and grading.

While in a smaller class, teachers...

- experience a greater sense of personal satisfaction.
- feel a greater sense of achievement.
- enjoy teaching more.
- deal more individually with misbehavior problems and diagnose causes before major problems occur.

Overall, both students and teachers have better attitudes toward smaller classes. The atmosphere is one of less anxiety and tension. Studies of smaller classrooms have found a climate of warmth, reduced levels of frustration, and positive attitudes toward teaching and learning.

times having to schedule classes in hallways or in portable classrooms.

Class-size reduction should be viewed not as an end but as a means to an end. Teachers still need access to specialists, special programs, and other schoolwide services. Although there is evidence that the need for special services and programs is reduced in smaller classrooms, class-size reduction is a reform that should be used in conjunction with a variety of other practices.

A major advantage of small classes, teachers uniformly report, is that they can devote more time to instruction because they do not need to spend as much time on classroom management. These possibilities are realized when all

the conditions for a positive small-class experience are in place and a teacher can truly take advantage of a reduction in student numbers.

Wise policymaking seeks to produce the greatest student gains from finite education dollars. To reach this goal while attempting to reduce class size, policymakers must pay particular attention to the conditions noted above (a target of 13-17 students per class in the primary grades, with adequate training and support for teachers). Although specific scenarios may differ from state to state, research has shown these basic elements to be of utmost importance in the implementation of class-size-reduction initiatives. **CL**

PR

BEYOND ACADEMICS: What Students Gain From Smaller Classes

Much attention has been paid to the cognitive and academic benefits students obtain in smaller classes. Other benefits abound.

Students in smaller classes...

- learn basic skills and subject matter better, more easily, and faster.
- think more creatively and divergently.
- develop more positive attitudes, perceptions, and human relationships.
- function more effectively as members and leaders of groups.
- achieve higher attention and lower absence rates.
- are more fluent and proficient in writing, listening, and speaking skills.
- demonstrate less aggressive behavior such as fighting, shoving, pushing, or crowding.
- have fewer fears about being ridiculed or bullied.
- are more motivated and have a better self-concept.
- participate promptly, eagerly, and enthusiastically.

What should be the focus of district-level class-size policy?

Gaining the benefit from smaller classes begins with a districtwide policy that establishes concrete goals (such as a maximum of 18 students in K-3 classes) and sets clear priorities on use of funds. Consider the following points when creating a policy:

- Target money and other resources to minority and low-income students who stand the most to gain from CSR.
- Make better teaching and learning the cornerstone of CSR. "No organizational arrangement, including small class size, can compensate for poor teaching" (McRobbie, Finn, and Harman 1998). Use some funding for training inexperienced teachers.
- Assess facility needs and plan for reconfiguration of existing physical plants or for new construction. Decide whether CSR is worth displacement of other programs or activities.
- Apply for waivers to leverage federal and state funds in pursuit of district priorities. Set aside funds for activities such as community meetings, teacher training, and curriculum planning.
- Continually evaluate the results of CSR. Monitor not just changes in pupil-teacher ratios but teachers' classroom practices, the unforeseen displacement of other programs, and unexpected costs.

SOURCE: "Capitalizing on Small Class Size," by Jessica O'Connell and Stuart C. Smith, ERIC Digest, Number 136, April 2000, ERIC Clearinghouse on Educational Management.

Teaching Practices in Small Classes

Do teachers change their instructional practices when their classrooms have fewer students? Do we know which teaching practices make a difference in smaller classrooms? What issues should professional development address?

It could be assumed that effective teachers would be successful in any classroom, whether large or small. Research during the past couple of decades has brought a consensus on a handful of traits that characterize effective teaching:

- Gifted teachers hold high expectations for their students.
- They give clear and focused instruction in a highly efficient classroom setting.
- Good teachers monitor their students' learning and reteach students when necessary.
- They set high behavioral standards and also maintain personal interactions with their students.
- They are characterized as motivated and enthusiastic.

These characteristics are necessary in any classroom setting. To get the most out of smaller classes, however, policymakers must ensure that these practices actually occur in small-class settings.

Teachers in a variety of studies have identified the following advantages of small class size:

- More time for teaching and learning, and more space in which to do so.
- A greater ability to monitor and evaluate their students.
- An enhanced atmosphere that leads to tailored instruction at each student's ability level.
- Better classroom management with fewer students (Pate-Bain, Achilles and others).
- More time to assist individual students in a relaxed, interactive environment.
- Better use of teaching methods and materials through increased small-group work and more varied, imaginative, and organized activities (Perez 1998).

A reduction in class size doesn't automatically ensure that classrooms will be characterized by these elements. Research in fact has shown that

most teachers do not change their teaching practices when they move to smaller classes (Ziegler 1997). Evaluation findings from the California CSR initiative's first three years found only slight differences in the ways teachers covered curriculum and the types of activities they employed (Bohrnstedt and Stecher).

Wisconsin's SAGE program found that although teachers assigned to smaller classes thought they were teaching differently, observers saw few discernible differences between large-class and small-class instruction.

Must teachers change their teaching practices for a reduction in class size to benefit student achievement? Many people seem to assume so, but the research offers little guidance. As Bohrnstedt and Stecher point out, "no well-developed theory suggests why teaching in smaller classes should be different than in larger classes."

Instead of focusing on specific teaching techniques that work best in

VIEWPOINT

If you aren't working harder, you probably aren't doing it right. You now have fifteen, not one big class. If all you are going to do is pass out work sheets, go back to a bigger class."

-Janice McMahan,
Principal, North
Carolina

Teachers with smaller classes report that their students enjoy school more and have fewer absences, and that they are able to cover material more thoroughly with greater student comprehension. Smaller classes also give teachers more time to spend on students who need extra help, plan enrichment and remedial activities, or check work during class to provide immediate feedback."

- Jane Walters,
Tennessee
Commissioner of
Education

“While the research evidence on the effects of class size suggests no real effects, the research does show dramatic differences in the performance of teachers. The research confirms some teachers are much better than others and differences in teacher effectiveness completely dwarf any possible differences due to class size variations. Given this, it seems much more productive to channel money toward attracting and retaining particularly effective teachers than toward continuing to pursue a failed policy.”

**-Eric A. Hanushek
Professor of
Economics and
Political Science,
University of
Rochester,
New York**

smaller classes, most studies look at effective teaching practices in general and examine whether teachers engage in more of these practices in smaller classes. Smaller class size may simply enhance the instructional strategies already employed by effective teachers.

Bohrnstedt and Stecher recommend that school officials pay careful attention to teaching practices in

small classes so they can design professional-development programs to equip teachers with suitable new skills.

Charles M. Achilles (1999), a principal researcher in the Tennessee STAR project, asserts that teachers may not need to change their teaching strategies to obtain the benefits of CSR. He contends that teachers may be able to do more with fewer kids using the same strategies educators

Smaller class size may simply enhance the instructional strategies already employed by effective teachers.

have long known to be most effective, such as the following:

- Instruction is guided by a preplanned curriculum.
- Students are carefully oriented to lessons.

California and Tennessee

The early success of Tennessee’s widely known “STAR” program spurred similar CSR initiatives, including California’s. Here is how the two states’ efforts compare.

Tennessee

- A controlled experiment in a limited number of schools, with teachers and students randomly assigned.
- Class size reduced from 22-26 to 13-17 students.
- Adequate space for smaller classes.
- Credentialed teachers.
- Nearly all students spoke English.
- Standardized objectives for English and math.
- Existing test scores aligned with standards.

California

- Statewide implementation in four grades (K-3), beginning with 1st and 2nd grades.
- Class size reduced from an average of 28.8 (max. 33) to a maximum of 20 students.
- Extremely limited space due to rapidly growing enrollment.
- Existing shortage of teachers, some hired with credentials.
- Nearly one-third of students were English-language learners.
- Standards and objectives under development.
- No statewide test until 1998; it was not aligned with new standards.

Improvements in our schools will occur in small steps with a lot of hard work. Reducing class size in the early grades—particularly in urban schools—is a small step, but a real step in this direction. Small classes have a broad spectrum of benefits.”

- Jeremy D. Finn, Professor, State University of New York, Buffalo

Iwould rather have my child in a classroom with 35 children and an excellent teacher than in a classroom with only 20 children and a teacher who was below par.”

-Edward Fry (retired), Department of Learning and Teaching Rutgers University

- Instruction is clear and focused.
- Learning progress is monitored closely, and when students do not understand, they are retaught.
- Class time is used for learning, not discipline.
- Personal interactions are positive.
- Instructional groups formed in classrooms fit instructional needs.

In smaller classes, Achilles reasons, classroom management is easier and basic instruction can be completed quicker, allowing teachers additional time to practice effective teaching techniques, such as planning for lessons and dividing the class into groups. Additional time is also available to cover additional materials.

Pointing to data from Project STAR and other studies, Achilles asserts that smaller class size automatically guarantees that teachers will use effective teaching practices, regardless of whether they have small-class experience or not.

Effective teachers are skilled teachers. In smaller classes, the key to teachers' success with student achievement is the know-how to be effective with fewer students. Conditions that foster good teaching will lead to improved learning for students. Small classes can facilitate these favorable conditions, but only with well-planned implementation guidelines. **CL**

PR

California Study May Offer New Insight into Teaching Practices

California is undertaking a study mandated by the legislation that authorized that state's CSR initiative. The RAND Corporation and the American Institutes for Research (AIR) are taking lead roles in this study. Other partners in the CSR Research Consortium are WestEd, EdSource, Policy Analysis for California Education (PACE), and the University of California at Riverside.

The study will address four main issues: the effects of small-class size on student achievement, its effects on special populations, the staffing requirements districts face, and what state teaching qualifications will be affected. The main focus of the study will be the practices teachers can use to improve small-class instruction.

According to George Bohrnstedt at AIR, researchers will look at achievement gains as a function of CSR, the number of new teachers hired because of CSR and the credentials they do or do not have, the kinds of districts where teachers work, and whether per-pupil expenditures rise or fall. This evaluation is expected to last until March 2002.

The consortium's first report (Bohrnstedt and Stecher 1999) is available at www.classsize.org

The Costs of Reducing Class Size

Class-size-reduction initiatives have spurred discussion about their effects on student achievement, teacher quality, school facilities, and the organization of the educational system. But no reform can take place without one key element—money, and in the case of CSR, lots of it.

A major consideration for state legislators and for school and district officials who are deciding whether to undertake CSR is, of course, its cost. Much of the debate revolves around the issue of whether reducing class size is cost-effective.

Although some aspects of the financial impact of CSR can be readily calculated, an avalanche of other unanticipated financial and nonfinancial costs may devastate CSR efforts.

Currently, California is confronted with a teacher-quality crisis of huge proportions that is in large part a result of recent class-size-reduction requirements. Implementation of that state's 1996 Class Size Reduction program "has arguably created the greatest immediate need for personnel and facilities in the history of California public education," stated the Joint Legislative Audit Committee (1999), a nonpartisan watchdog unit of the state's government. (See sidebar on page 10 for details.)

Another recent study, *Teaching and California's Future: The Status of the Teaching Profession*, sponsored by the Center for the Future of Teaching and Learning and conducted by SRI International, found that more than 10 percent of public school teachers in California have not met the state's minimum requirements (Shields and others 1999). In addition, over 1 million of the state's 5.7 million students are enrolled in schools that have such a large percentage of underqualified teachers that the schools are effectively "dysfunctional" (Shields and others).

According to the task force that guided the study, correcting the problem of unqualified and underqualified teachers in California will cost between \$1.3 and \$1.8 billion (Shields and others).

The following are among recommendations made by the 20-member task force, which consisted of educators and policymakers:

- raising beginning wages from \$32,000 to \$40,000
- phasing out waivers and emergency permits in the next five years
- providing 100 percent "forgivable" loans of at least \$20,000

to students who complete a teacher licensure program and teach in hard-to-staff schools for at least four years (Shields and others)

Despite the overwhelming costs California will incur to ensure that all students are taught by qualified teachers, some argue that CSR can actually save costs in the long run. For example, if—as claimed by its proponents—small class sizes result in improved student behavior in school, there will be a reduction in vandalism costs and less need for corrective measures such as Saturday school (Achilles and Price).

Expenditures on Class-Size Reduction, 1999-2000 School Year

Federal Class Size Reduction Program \$1,200,000,000

State Initiatives and Programs*

Alaska	Indiana	Minnesota	South Carolina
\$1,582,594	\$35,609,520	\$137,700,000	\$34,158,671
California	Iowa	Nevada	Utah
\$1,534,254,000	\$10,000,000	\$82,900,087	\$67,027,003
Florida	Louisiana	New York	Washington
\$10,000,000	\$31,939,287	\$75,000,000	\$99,000,000
Illinois	Maryland	Ohio	Wisconsin
\$5,000,000	\$11,600,000	\$130,995,486	\$18,200,000

Total state expenditures: \$2,284,966,648

Total state and federal expenditures: \$3,484,966,648

The Clearinghouse verified these figures with state departments of education in March 2000.

*Only state expenditures that have been allocated as part of a legislated state initiative or program are listed here. As the table on pages 14-15 indicates, several states (such as Tennessee, Texas, Virginia, and Wyoming) mandate or encourage maximum student-teacher ratios and expect districts to meet the targets with general education dollars (state and local).

Students in smaller classes in primary grades may continue on a path that reduces the need for special education, makes grade retention less likely, and increases the likelihood of high school graduation—all cost savers (McRobbie and others).

Making Sure CSR Pays Off on Its Promise

Few would disagree with the assertion that CSR is not worth the cost if it does not bring about its intended benefits. But to attain those benefits, school districts may need to do more than simply hire more teachers and put them in classrooms with fewer students. A Texas study highlights this issue.

Researchers Richard Murnane and Frank Levy (1996) describe an experiment in Austin, Texas, where the school district, as part of a desegregation plan in the late 1980s, allocated an extra \$300,000 per year for five years to each of 15 low-income elementary schools, with the hopes of raising student achievement and attendance. All schools used their funds to hire extra teachers to reduce class size. In 13 of the 15 schools, student achievement and attendance remained extremely low. The two other schools experienced a soaring increase in both attendance and student achievement.

The difference between those two schools and the other 13? The 13 schools “went about business as usual,” retaining the same curriculum and teaching methods. The two succeeding schools raised standards, revised curriculum, set up health clinics, and invested in teacher training in addition to hiring new teachers. The key to successfully funding CSR, some believe, is doing more than pouring in large amounts of money and “hoping for the best.” Policymakers must ensure that funds are put to the best possible use (Black 1999).

Federal Funding of Class-Size Reduction

Early in 1999, the Clinton Administration pledged \$1.2 billion to support class-size reduction. This money was released to states on July 1, 1999, as a “down payment” on the administration’s plan to ensure a “world-class education” to America’s children, thereby ensuring “America’s future prosperity.”

The administration’s long-range goal is to spend more than \$12 billion on class-size reduction by 2005 to help school districts hire 100,000 new teachers and reduce class sizes in the elementary grades to a nationwide average of 18 students.

In November 1999 Congress appropriated \$1.3 billion for the program’s second year, a \$100 million increase over fiscal 1999. At the insistence of Congress, the new legislation also gives school districts more flexibility in use of the funds. In the 2000-01 school year, districts will be able to spend up to 25 percent of the aid on professional development, up from 15 percent in the original legislation.

Other provisions of the new law likewise place a premium on teacher quality. Federal funds can no longer be used to hire teachers with emergency certificates, and teachers previously hired under the program must become certified within one year. Small school districts and districts with a shortage of teachers now have more flexibility in using the money for training.

The U.S. Department of Education, in a report released in November 1999 that was based on

preliminary data from nearly 46 percent of the nation’s school districts, gave these estimates about the program’s effectiveness:

- More than 29,000 teachers have been hired with FY 1999 Class Size Reduction Program funds.
- Approximately 1.7 million children are expected to benefit directly in the 1999-2000 school year by being educated in smaller classes.
- School districts are concentrating this first installment of funds so that it makes a big difference for some students immediately. Average class size has been reduced by more than five students in the grade levels and schools where the vast majority of teachers hired with these funds teach.
- 42 percent of the teachers are teaching in first grade. In their schools, average class size fell from approximately 23 students to approximately 17 students.
- 23 percent of the teachers are teaching in second grade. In their schools, average class size fell from 23 students to less than 18 students.
- 24 percent of the teachers are teaching in third grade. In their schools, average class size fell from more than 23 students to just over 18 students.
- To strengthen teacher quality, school districts are using approximately 8 percent of the funds they received to support professional development for teachers.

SOURCE: <http://www.ed.gov/offices/OESE/ClassSize/localsuccess.html>

Questions to Ask When Calculating the Cost of CSR

As California's experience makes clear (see accompanying sidebar), estimating the cost of CSR is an inexact science that must take into account not only personnel and facilities but administrative requirements and displacement of other mandated programs. Here are several questions policymakers can ask when trying to calculate CSR's actual costs:

1. What is the initial class size? The greater the drop to a smaller class, the larger the cost.
2. Is there a rigid cap or is there flexibility in the number of students per teacher? A rigid cap increases the cost by decreasing the final average class size.
3. What is the cost of teachers who must be hired for CSR? The number of teachers needed, the salary scale of each district, and the experience level of the teachers hired will determine this cost. Teacher costs will increase with time as teachers move up the salary ladder. In addition, teachers will require professional development and support, which adds up to additional costs.
4. How many new classrooms are needed? Additional facilities to house new classes will be needed. Some schools have rented vacant space in nearby retail shopping malls or other commercial buildings, which can be converted to early childhood centers (Achilles and Price 1999).
5. What costs will be incurred when a once-closed school is reopened? Examples are the need for potential renovation, utilities hookups, and resumption of custodial and clerical services.
6. What are the potential savings of CSR? Some districts may

Impact of CSR on Personnel and Facilities in California

When California's nonpartisan Joint Legislative Audit Committee surveyed school districts to discern the effects of the CSR program on personnel and facilities, it found a hodgepodge of consequences, some anticipated, others not. Here are a few of the findings:

- An estimated 142,000 students in grades K-3 are being taught by teachers who have not completed a state-certified training program.
- There is a shortage of at least 21,312 classroom teachers in the state, and a shortage of 1,116 administrators.
- California's public schools have an immediate need for at least 11,310 new classrooms at an estimated cost of \$760.6 million.
- "Facility shortages have translated into a marked reduction of specialized programs and mandated student services such as special education, childcare, libraries, and computer labs. School districts have reported no other option but to displace many of these programs

and services in order to fulfill the facilities demands of the CSR Legislation."

- Many districts, especially in urban settings, reported a lack of available land for constructing new schools.
- "The administrative requirements of CSR are time consuming and restrictive and cause many school districts to lose CSR funding."
- "Many districts are losing playgrounds to portables."
- "CSR may not be a viable approach in the smallest school districts which only have one or two classrooms and cannot break down the classes into smaller sizes due to a lack of funding for staff."
- Even though small school districts have fewer administrative staff members and receive less funding from the program, "they are required to perform the same administrative duties and submit just as much paperwork."

SOURCE:
Joint Legislative Audit Committee (1999)

experience cost reductions due to reduced grade retention, less vandalism, and so forth.

7. Will the program be equally cost-effective for smaller and larger districts? Will smaller districts need supplemental funding to cover administration of CSR?
8. Will CSR demand so many resources of districts that they are forced to terminate or reduce other programs and services? What level of funding

will be required to prevent displacement of other programs?

For examples of CSR program costs, see the table on pages 14-15 on current state initiatives. There are ways to reduce the costs associated with class-size reduction. (For more information, see "Designing a Policy.") **EH**



Alternatives to Class-Size Reduction

By Lawrence O. Picus

The research shows that reducing class size can, and probably does, lead to improved student performance. It is, however, a very expensive option: In addition to hiring more teachers, schools need additional classroom space. Before embarking on a substantial CSR program, policymakers may want to consider whether more cost-effective alternatives exist. Current research suggests that such alternatives are available and should be considered, either instead of—or in addition to—class-size reduction. One range of options deals with teacher knowledge and skills, while others relate to the structure of the education program offered at individual schools.

Teacher Knowledge and Skills

Reducing class size gives students greater access to teacher resources. There is evidence this will help students learn. However, what the teacher knows and is able to do is at least as important in helping students learn.

Darling-Hammond (1998) argues that “teacher expertise is one of the most important factors in determining student achievement.” She quotes Greenwald, Hedges, and Laine’s work (1996), which demonstrated the relative impact of spending \$500 more per pupil on increased teacher education, increased teacher experience, and increased teacher salaries. All three of these appear to have a greater impact on student test scores than does lowering the pupil-teacher ratio. For an expenditure of \$500, the greatest gains in student test scores (measured in standard deviation units from a range of tests in 60 studies) were achieved through increasing teacher education. Lowering the “pupil-teacher ratio was the least cost effective of the four methods. Increasing teacher salaries and experience fell between lower pupil-teacher ratios and teacher education in terms of cost effectiveness.”

Ferguson (1991) found that the effects of teacher expertise in Texas

were so great that after controlling for socioeconomic status, disparities in achievement between black and white students were virtually entirely explained by differences in teacher qualifications. He found that teacher qualifications explained 43 percent of the variation among the factors affecting math score test gains, whereas small classes and schools only accounted for 8 percent of the gain. Home and family factors were identified as explaining the remaining 49 percent of the variance.

Darling-Hammond (1998) summarizes these findings by stating that “teachers who know a lot about teaching and learning and who work in settings that allow them to know their students well are the critical elements of successful learning.” Smaller classes are clearly desirable in her view, but given limited funds to invest, her work suggests policymakers should at least take a close look at improving access to high-quality professional development first.

Professional development is frequently poorly funded in school districts and often the first item to be cut when finances become tight. Darling-Hammond’s research suggests this may be a mistake, and in fact, more resources should be put into professional development. Even if class size is reduced,

professional development still may be essential to help teachers maximize their skills and capitalize on the benefits of having a reduced number of children for whom they are responsible. Certainly investments in professional development would be complementary to class-size-reduction programs.

Reducing class size and providing greater training opportunities for teachers are not the only options available for improving student learning. There are many things school board members and site leaders themselves can do to restructure their schools for improved learning. Several of these are briefly discussed below.

VIEWPOINT

“If you make the class size smaller and the teacher isn’t doing a good job in the first place, it won’t make a difference.”

**- Kathy Christie,
Education
Commission of
the States**

Reorganizing Schools

Many of today's educational reforms are restructuring how educational resources are used. A number of the reform designs supported by the New American Schools (NAS), for example, rely on using teaching resources differently, rather than purchasing more. While seven designs supported by NAS require some investment on the part of a school or school district, most are less expensive than dramatic reductions in class size or pupil-teacher ratios. Most also come with substantial teacher-training components.

Odden and Busch (1998) found substantial gains in student performance, often as high as one-third of a standard deviation, at NAS design schools. These schools reach these performance levels with relatively little additional expenditures, generally averaging around \$50,000 to \$250,000 a year for a school of 500 students (an extra \$100 to \$500 per pupil each year). Odden and Busch argue that any school can reorganize itself into one of the NAS designs by looking closely at its current allocation of teachers and aides and reassigning them as needed to meet the design specifications. In many instances this calls for eliminating aides in favor of more teachers. Results of the Tennessee STAR project show that spending for teacher aides may not be productive anyway.

Another option schools can consider is restructuring the use of time. The National Commission on Time and Learning (1994) reported on a number of successful schools and school districts that had improved student performance through different ways of organizing the school day to give students more access to, and time with, teachers. Models that provide more access to learning resources, particularly teachers, may also be substantially more cost-effective than class-size reduction.

In conclusion, class-size reduction is currently one of the most

popular—and most expensive—educational reforms today. At least 21 states have enacted mandatory or voluntary policies aimed at reducing class size in the primary grades, and one (California) has even created an incentive to reduce the number of students in ninth-grade English and math classes.

The question facing state policymakers is whether substantial investments in smaller classes should be made. The research shows that such investments will lead to improved student outcomes. However, the research also shows that attention to teacher training and expertise may have a bigger payoff per dollar spent. Moreover, as California's experience shows, states that jump into a major CSR program quickly may find they have a shortage of qualified teachers. Given the importance of high-quality teaching to student learning, investment in the quality of the teaching force first might be a better way to maximize the potential of the dollars that are used to reduce class size.

In short, few people appear to oppose class-size reduction. However, there are a number of things states and school districts can do to ensure that the substantial investment made in teachers and classrooms pays off to the maximum extent possible. Virtually all of them revolve around ensuring that the state has the highest quality teaching force possible.

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Other Proposed Alternatives

Is there a way to achieve some of the benefits of small classes without actually decreasing their size? Class-size reduction has the disadvantage of requiring more funding and more teachers, both of which are in short supply.

To avoid these problems of CSR, some policymakers, legislative analysts, and school officials have proposed alternative forms of instruction and grouping that may help to produce the same effects as reduced class size. These strategies, unlike the alternatives discussed by Dr. Picus in the accompanying article, have not been found by research to have benefits comparable to a reduced pupil/teacher ratio.

- The use of cooperative-learning groups, block groups, and other kinds of small groups to give students intensive small-group instruction in areas such as reading, writing, and math; these methods might be used in conjunction with large-class instruction.
- Scheduling changes that decrease the size of some targeted classes throughout the school day.
- Peer tutoring where students get one-on-one attention.
- Use of parent and community volunteers to provide enrichment and assistance in the classroom.
- Team teaching.
- Use of computers and other individualized aids, such as learning centers.
- Pullout programs for students with special needs.
- The use of teacher aides to work in an instructional capacity.

Addressing Professional Development

It is ironic that smaller class size has become a policy goal at a time when teachers, at least in some states and in some subject areas, are in short supply. Where will the teachers come from to fill the extra classrooms smaller size dictates? To hire the two million teachers the U.S. Department of Education estimates will be needed during the next ten years because of retirements and increasing enrollment, some of the nation's school districts may have to hire teachers who are only marginally well trained in the fields they are expected to teach. Enter the need for professional development

Excellent professional development that focuses on standards and sound instructional delivery can give inexperienced teachers the skills and knowledge they need to capitalize on smaller class size. Followup support and feedback can help teachers retain and refine those skills. Highly skilled and trained teachers also benefit from professional development that keeps them motivated and enthusiastic.

In California, many teachers have received emergency credentials to fulfill CSR requirements. Recent legislation in that state requires school districts to provide professional-development programs for all teachers who are assigned to smaller classes. The law specifies that professional development for these teachers must focus on individualized instruction, effective classroom management, and responsiveness to student needs.

A task force that recently conducted the first comprehensive examination of teacher quality in California in over ten years recommended that the state offer districts financial incentives of "up to \$250 per student to restructure the teaching day and year to enable teachers to participate in well-crafted programs of professional learning experiences" (Bradley 1999).

In North Carolina, the "Success Starts Small" study followed four teachers in a class-size-reduction

project. During the first year, the teachers received twenty hours of "staff development studying strategies for more active learning for six-year olds." They also visited small-size classrooms in surrounding districts and met on a weekly basis to debrief and plan. They attended seminars and were introduced to computer-based learning. These teachers focused on finding ways to work with all children.

Professional development must be flexibly designed to meet the needs of each school situation. One

of its primary goals is to create a professional community for teachers. Group work, peer tutoring, and mentor programs that match master teachers with new teachers are tactics that can be used. Professional development should also address the diverse needs of students as teachers learn to identify and respond to learning problems (McRobbie 1998).

Professional development should also provide an opportunity for inquiry and reflection. Some educators believe that the primary focus of professional development should be to enable teachers to gain practice in new methods and to apply and adapt those methods to their individual classroom settings (Evertson and Randolph 1992).

Other educators have explored different priorities. Some believe that teachers benefit from assistance that broadens their theoretical understanding of student learning based on current research. According to Evertson and Randolph, student gains resulting from small class size will be most likely to be maintained when professional development (1) is embedded in school culture, (2) is based on a systematic approach to actual problems specific to teaching, and (3) supports change in teachers' thinking and practice. CL

VIEWPOINT

For \$1.2 billion you could retrain today's teachers so they knew their subject. You could give each of the nation's 2.7 million teachers a \$1,000 tuition grant to go learn math or really effective techniques for teaching reading. The question the public needs to ask is: 'What else could the money be used for?' and 'Do you make a national policy change on the basis of a hunch?'"

- Chester Finn, Hudson Institute

CLASS-SIZE-REDUCTION INITIATIVES, BY STATE

State (Date Began)	Policy Intent, Elements	Funding (1999-00 School Year)	Target	Level of Implementation	Implementation Issues
Alaska (1997, 1998)	Mandate. Enacted in 1997, amended in 1998. Legislation authorizes formation of smaller classes and provides funding for those schools choosing to do so.	\$1.58 million.	K-4	K-4—20 students per class	Approximately 20,000 new teachers were needed, so state relaxed teacher certification requirements. Other concerns include a surge of teachers moving from “less-advantaged” to more desirable districts to fill the newly created positions; a shortage of substitute teachers; supervision and training of noncertificated teachers.
California (1996)	Class Size Reduction Program. Goal is to improve early literacy by lowering K-3 class size to 20. Voluntary. Incentive dollars offered for each pupil in K-3 class of no more than 20. Professional development required, using existing funds.	\$1.53 billion.	All K-3 students, a total of approximately 1.3 million Implementation occurs in 1 st grade, then 2 nd , then K and/or 3 rd .	1997-98: 84%	Intense public pressure to implement quickly. Not enough qualified teachers (21% of 1996-7 new hires on emergency permits). Not enough classroom space. Enrollment boom. Equity.
Florida (1996)	Goal: 20 students per teacher.	\$100 million.	K-3 with a priority on K-1.		
Illinois (1981, 1988)	Initially a pilot program. Now statewide, mandatory.	\$5 million.	In 1988-89: K-1—18 students, 2-3 grade—20 students.		Teachers have reported improved student behavior, higher test scores, more efficient classrooms. Program evaluations, however, indicated a weak relationship between lower class size and student achievement, but significant improvement in teachers’ morale and attitudes.
Indiana (1981)	Prime Time Program. Programs are decided at local level; funds are allocated at district level.	\$35.6 million.	For 1995-99: 18-20 students. For 1999-00: 15-18 students, depending on at-risk index.	Of 293 districts, only 3 do not participate.	
Iowa (1999)	Goal. Reduce K-3 class size to 17 for basic skills instruction. Great flexibility: districts can reduce class size, add kindergarten, hire paraprofessionals, provide professional development.	First year (1999-00) \$10 million, second year \$20 million, third year \$30 million, fourth year at least \$30 million.	K-3	All districts have established goals for the program.	Not enough dollars for some districts to hire new teachers. Lack of space in some buildings to add classrooms.
Louisiana (1986)	Districts that meet requirement not to exceed 20 students in K-3 classes can use CSR funds to hire certified teachers for other grades.	\$31.94 million.	K-3 classes not to exceed 20 (unless authorized in writing by superintendent).	All districts (except one small rural district) and all Type II charter schools are participating.	Difficulty locating and hiring certified teachers. Lack of classroom space.
Maryland (1999)	Learning Success Program. Goal is to reduce class size in grades 1 and 2 to 20 students, particularly in reading.	\$11.6 million.	Requires school systems to set performance targets; has a goal of hiring 1,000 teachers.	All districts will participate.	
Minnesota (1993)	Learning and Development Program. Goal is to reduce class size in grades K-6 to 17 students.	\$134.8 million, plus \$2.9 million from another program. Additional funding of \$98 million over 1999-00 and 2000-01 school years is directed at K-3 grades.	K-6 classes not to exceed 17 students.		
Nevada (1989)	Mandatory Phased-in program to lower early-grade size from average of 25 to 16.	\$82.9 million. Funding for 1998-99 could be used to reduce 3 rd grade to 19:1, or to adopt proven comprehensive programs for achievement. Funds teachers, not facilities.	Grades 1 & 2, at-risk K, and some 3.	Began with 1 st grade and some at-risk K, and expanded to 2 nd in 1991-2.	Not enough classroom space. Enrollment boom.
New York (1999)	Class Size Reduction Program. Goal is to reduce class size in grades K-3 to 20 students.	First year (1999-00) \$75 million; second year \$150 million; third year \$225 million.	Funds can be used for teacher salaries and benefits and for one-time startup costs for each new classroom; funds can’t be used for professional development or for new buildings.		Few problems, the most pressing of which is lack of space for new classrooms.

State (Date Began)	Policy Intent, Elements	Funding (1999-00 School Year)	Target	Level of Implementation	Implementation Issues
Oklahoma (1990)	Mandate Fiscal and accreditation penalties for noncompliance. Physical education, music, vocational not subject to penalty.	Funding addressed through foundation program.	K, 1-3, 4-6. No more than 20 students in class.		
Ohio (1999)	To reduce class size in grades K-1.	\$131 million.	K-1	30% of school districts qualify for state funding.	Districts have complained of having difficulty locating classroom space and certified teachers.
South Carolina (1997)	Matching grant program (districts match state funds based on their ability to pay). Priority is given to districts with most critical needs and to districts with higher percentages of students qualifying for free or reduced-fee lunches.	\$34.16 million.	1-3. Goal is to reduce student-teacher ratio to 15-1 over time.	84 of 85 districts participating.	Facilities (state is addressing the issue through a \$750 million school facility bond bill for FY 2000).
Tennessee (1985)	Mandate: Class size in grades K-3 may not exceed 20. Districts have until 2002 to comply. Districts are allocated additional teachers to reduce pupil-teacher ratio to 15:1 for one-third of students on free and reduced lunch.	Total cost is state funded (no figure available).	K-3	In 1996-97, 98.2% of public school classes were at or below the class size maximums for individual classrooms.	Study showed greatest gains in inner-city small classes. Classes with teacher aides achieved slightly higher scores than regular classes, but differences were not statistically different.
Texas (1984, 1995)	Mandate Districts may not enroll more than 22 students per classroom, with a ratio of not less than 1 teacher to each 20 students in average daily attendance. Some exceptions apply.	Funds are not allocated specifically to CSR, which is required by law and funded through general aid to education.	K-4		
Utah (1990)	Goal: Focus on reading. Lower class size to 10 in K and to 15 in grades 1-3. Funding: Distributed: 80% per student, 20% to low income on a per-school basis. Evolving toward 100% allotment on per student basis.	\$67.03 million.	Initially K-4 (with half of district allocation to focus on K-2). 1996-7: Expanded to K-6. 1998-9: Expanded to K-8.	Most K-6 classes now number 21-25 students. Greatest reductions have taken place in K-4.	Not enough classroom space in nonrural areas. Enrollment boom (now leveling off).
Virginia (1996)	Voluntary	State funding, based on incremental cost of providing lower class sizes. Districts must provide matching funds.	K-3 schools with high or moderate concentrations of at-risk students.		
Washington (1986)	To enhance staffing in grades K-4 by funding an additional 4.2 certificated instructional staff (CIS) per 1,000 FTE students in grades K-3 (over the minimum of 49 CIS) and an additional 7.2 CIS in grade 4 (over the minimum of 46 CIS).	\$99 million.	K-4 (Prior to 1999-00, targeted grades were K-3).	In 1998-99, participation rate was 96.4%.	Most common reason districts give for not using the maximum available funding is lack of classroom space.
Wisconsin (1996)	Student Achievement Guarantee in Education (SAGE). Goal is to improve academic achievement through four methods, one of which is small classes of no more than 15 students in grades K-3. Originally limited to high-poverty schools, the SAGE law was changed this school year to allow any school to apply.	\$18.2 million. 2000-01: \$58.5 million.	K-3	Implementation takes place in waves. First wave of schools began in 1996-97 at K-1 grades, then added grade 2 in 1997-98 and grade 3 in 1998-99. Second wave began in 1998-99. Third wave will start in 2000-01.	
Wyoming	Education code says each district "shall endeavor to maintain when practicable" an average class size of no more than 20 students per teacher in grades K-3.	State funding mechanism encourages districts to achieve goal of reduced class size.	K-3		

Editor's Note: The Clearinghouse compiled the information contained in this table through telephone and email correspondence with contact persons in state departments of education in March and April 2000.

Designing a Policy

The wealth of information on class size can bewilder school board members when the time comes to sit down and design a policy for class-size reduction. No single policy fits the circumstances of all school districts. For example, a district that already has an average class size of 21 students in the elementary grades will have less work to do than a district whose classes average 27.

These guidelines, expressed in the form of questions board members and district officials can ask themselves, borrow from the recommendations of Joan McRobbie, Jeremy Finn, and Patrick Harman and other authorities whose works are cited.

Although the guidelines are offered with local school boards foremost in mind, the issues they address can also stimulate discussion among legislators who are designing state-level policy on class-size reduction.

Funding

Your district has applied for and received the funds to design a CSR policy, but how do you decide where it all goes?

McRobbie and colleagues suggest targeting minority and low-income children in primary grades. Because research across the board demonstrates these children stand the most to gain from smaller class size, allocating funds to them may prove to be the most effective use of resources.

What factors other than class size should govern the allocation of funds?

Don't lose sight of why class size is being downsized—to raise student achievement. Small class size is not an end in itself. Consider setting aside money for community meetings, teacher training, and curriculum planning. Flexibility is also important at the local as well as district level. Every school will be different in the way it needs to use funds.

If state and federal funding are inadequate to meet district

goals, can any other sources of funding be tapped?

In schools with a high proportion of low-income families, Title I funds have become a common means of reducing class size. In Burke County, North Carolina, the district decided to use state funds originally allocated for full-time teacher assistants to fund regular teaching positions instead.

Other districts have implemented creative scheduling so that class size is reduced for a portion of the day. For example, the Oak Park Plan requires all teachers in the school to teach 15 students in core academic areas for three hours a day. For the remaining 2.5 hours, students are taught in regular class sizes of approximately 25 students.

Achilles and Price (1999) recommend examining programs in the district to determine if all currently funded programs are still a high need, or if some could be reduced or eliminated altogether to free up funds. They also suggest increasing the size of some classes at the secondary level as a tradeoff for lowering class sizes in the early elementary grades.

Will the funding be flat or wealth-adjusted? In other words, does each student receive the same allocation of funds, or is the allocation adjusted by a formula?

California's program allows \$800 of incentive money for every student in a 20 to 1 primary class. Some districts already had smaller classes and did not have trouble meeting the 20:1 cap within the dollars allocated. Many urban districts, on the other hand, were forced to dig deeply into their own

VIEWPOINT

I agree that reducing class size to no more than 15 would improve overall student achievement. It would enable teachers to better monitor and assess individual student performance for the purpose of selecting appropriate teaching and learning strategies. Practically speaking, however, building the required additional classrooms and staffing those classrooms from a decreasing pool of certified teachers would make implementation of this degree of class reduction difficult."

- Julia P. Kron, Director, North Carolina Teacher Academy

funds to hire enough teachers and create classrooms, because the allocation of \$800 per student did not meet their needs. This across-the-board rate created some problems for districts that had a difficult time hiring qualified teachers, or for those that had no way of creating space for new classrooms.

Formula-based funding can help offset the kinds of inequities California's school districts encountered. For example, Utah's formula initially allotted 80 percent of the

state's K-6 CSR funding on a per-pupil basis, with 20 percent reserved for districts with rapid growth.

Facilities

Will existing facilities accommodate the number of new classrooms that will be needed?

School officials across the nation have said inadequate facilities are a big problem as they have tried to implement CSR policies. The shortage of facilities in California was the single most important deterrent to implementing CSR fully and quickly (Bohrnstedt and Stecher).

One solution to cramped space is to purchase portable classrooms, as many California schools have done. In a search for 18,000 new classrooms, California school districts also converted libraries, music rooms, computer and science labs, childcare centers, faculty lounges, and auditorium stages into primary classrooms, temporarily or permanently. California school officials used many other strategies to cope with a sudden shortage of facilities. They reconfigured some schools by moving sixth-graders to middle schools, switched to year-round scheduling, changed school boundaries, remodeled schools, cancelled inter- and intra-district transfers, and reopened schools previously closed.

Teaching

A hallmark of a successful CSR policy, according to McRobbie and colleagues, is to make better teaching and learning the cornerstone. Here are the key questions to consider:

Will there be enough qualified teachers for the number of new classrooms created?

Some districts have been able to fund a few extra full-time teaching positions by redistributing resources that had been designated for hiring other personnel. In cases such as California, these very stipulations were made within the legislation

WEBSITES

The following websites provide information and links to issues surrounding class-size-reduction initiatives.

www.classsize.org

Background information and research findings on California's class-size-reduction reform, by a consortium of six research organizations.

www.wested.org

Reports from WestEd, a nonprofit research and development service agency "dedicated to improving opportunities" for educators.

www.ed.gov/pubs/ReducingClass

www.ed.gov/pubs/ClassSize

Two reports from the United States Department of Education, and updates from proposed initiatives.

www.ed.gov/offices/OESE/ClassSize

Information about the federal Class Size Reduction Program.

www.aasa.org/SchoolAdmin

Information and insights from the American Association of School Administrators.

www.edweek.org

An online educational newspaper.

www.serve.org

Regional educational information from the Southeast states.

www.cascd.org

Website of the California Association for Supervision and Curriculum Development, "providing resources, indepth analysis, and practical, useable ideas."

www.edexcellence.net/library/size/html

Ideas in education from the Thomas B. Fordham Foundation.

www.ncsl.org/programs.educ/edu.htm

Links to state educational sites from the National Conference of State Legislatures.

www.ecs.org/ecsweb.net

Information updates from the Education Commission of the States.

that authorized CSR (McRobbie and others 1998).

Are existing policies on emergency or alternative credentialing consistent with the district's goals?

Will there be a shortage of specially trained teachers, such as in the field of special education?

What new programs in professional development must be offered to equip teachers with the skills they will need to gain the greatest advantage from their smaller classes?

If the district will need to hire many new teachers, some of them inexperienced or unprepared, the policy ought to include provisions for training, mentors, and other resources. Even veteran teachers may need more knowledge and skills if the CSR initiative is accompanied by higher standards, new assessments, and/or accountability measures.

Other Issues

Will CSR be optional or mandatory?

A seemingly optional program can, in reality, be mandatory if districts are reluctant to reject money after experiencing cut after cut, or if CSR's great popularity creates a pressure to adopt class-size reductions.

Will there be a rigid cap on class size, or is the number of students per class flexible within a range?

Districts have options such as capping the number of students per teacher, specifying an average across a school or district, or creating differing levels of reductions for different types of schools, such as a requirement that class sizes be lower in high-poverty schools.

Will small classes be self-contained or team-taught?

In Nevada, state CSR policy allows the 16:1 ratio in first and second grades to be achieved by having two teachers in a classroom of 32 students. However, many

worry that team-taught classes are not as effective as self-contained classes.

What will determine the scale of CSR, that is, the span of grades that will be affected?

Studies indicate that smaller classes produce the maximum benefits in kindergarten and grade 1. Research on California's CSR initiative suggests that if class size is reduced in phases, such as first in grade 1, then 2, then 3, the transition will be less confusing than a large-scale approach or one that moves too quickly (Achilles, January 1999).

How will the school district evaluate the results of class-size reduction?

In seeking to determine whether the CSR policy is accomplishing what was intended, or whether the program needs to be revised, policymakers need to consider more than pupil-teacher ratios. Obtain data on achievement, attendance, and other outcomes. Are there more interactions between teachers and students? Do teachers have more time to plan and execute worthwhile learning activities?

Is the policy compatible with other district objectives?

Policymakers will naturally want to make sure that CSR is part of a coherent set of policies that seek academic achievement for all students. Researchers who are taking part in California's CSR Research Consortium (Bohrnstedt and Stecher 1999) urge policymakers to consider how CSR will interact with current education policies and reforms, as well as new ones. Will the policy benefit all students and schools equally? Some districts are wary of putting so many resources into CSR that they would find it difficult to implement other needed educational reforms.

The above set of questions, while far from comprehensive, should provide policymakers with a good starting point in creating dialogue with other administrators, teachers, parents, and the commu-

VIEWPOINT

Reducing the size of elementary classes can make a difference in student achievement, but it is only one of a number of reforms that need to be initiated and funded. Class size must not be allowed to be the latest 'silver bullet' that takes up a disproportionate amount of the time and resources needed to improve achievement. Teacher professional development, parental involvement, equitable access to effective instructional technology programs, alternative placement and programs for disruptive students, and clearly defined standards are equally as, if not more, important initiatives to improve student achievement."

- Miles E. Turner,
Executive Director,
Wisconsin Association
of School District
Administrators

nity about what their CSR policy should look like. **EH**

Bibliography

- Achilles, Charles M. *Let's Put Kids First, Finally*. Thousand Oaks, CA: Corwin Press, Inc, 1999.
- Achilles, Charles M., and William J. Price. "Can Your District Afford Smaller Classes in Grades K-3?" *School Business Affairs* 65,1 (January 1999): 10, 12-16. EJ 579 431.
- Bain, Helen Pate. *Small Class Size Once Again: An Experiment in Grade One, Metro-Nashville Public Schools*. San Francisco, California: American Educational Research Association, 1986. ED 271 196.
- Beall, Mary. *Class Size Reduction: A Golden Opportunity*. California Association for Supervision and Curriculum Development, 1998. <http://www.cascd.org/class.html>
- Black, Susan. "Less Is More." *The American School Board Journal* (February 1999): 38-41.
- Bohrnstedt, George W., and Brian M. Stecher, Eds. *Class Size Reduction in California: Early Evaluation Findings, 1996-98*. Palo Alto, California: CSR Research Consortium, 1999. 157 pages.
- Bourke, S. "How Smaller Is Better: Some Relationships Between Class Size, Teaching Practices and Student Achievement." *American Educational Research Journal* 23, 4 (1986): 558-71.
- Bradley, Ann. "'Quality' Crisis Seen in Calif. Teaching Ranks." *Education Week* 19, 15 (December 8, 1999): 1, 9.
- Darling-Hammond, L.; Linda Ball; and Deborah Loewenberg. *Teaching for High Standards: What Policymakers Need to Know and Be Able to Do*. Philadelphia: National Commission on Teaching and America's Future and the Consortium for Policy Research in Education, 1998. ED 426 491.
- Evertson, Carolyn, and Catherine Randolph. "Teaching Practices and Class Size: A New Look at an Old Issue." *Peabody Journal of Education* 67, 1 (Fall 1989): 85-105.
- Ferguson, R.F. "Paying for Public Education: New Evidence on How and Why Money Matters." *Harvard Journal on Legislation* 28 (Summer 1991): 465-97.
- Filby, N. *What Happens in Smaller Classes? A Summary Report of a Field Study—Class Size and Instruction Project*. San Francisco: Far West Laboratory for Educational Research and Development, 1980. ED 219 365.
- Finn, Jeremy. "Class Size and Students at Risk: What Is Known? What Is Next?" Washington, D.C.: National Institute on the Education of At-Risk Students, Office of Educational Research and Improvement, U.S. Department of Education, April 1998. www.ed.gov/pubs/ClassSize/title.html.
- Glass, G.V., and M.L. Smith. "Meta-analysis on Class Size and Achievement." *Educational Evaluation and Policy Analysis* 1, 1: (1979): 2-16.
- Greenwald, R.; L.V. Hedges; and R.D. Laine. "The Effect of School Resources on Student Achievement." *Review of Educational Research* 66, 3 (1996) 361-96.
- Gullo, D.F., and C.B. Buron. "The Effects of Social Class, Class Size and Pre-kindergarten Experience on Early School Adjustment." *Early Child Development and Care* 88 (1983): 43-51.
- Hanushek, Eric A. *The Evidence on Class Size*. New York: University of Rochester, Thomas B. Fordham Foundation, 1998. 4 pages. <http://www.edexcellence.net/library/size.html>
- Hanushek, Eric A. "Class Size Reduction: Good Politics, Bad Education Policy." *The High School Magazine* 6, 4 (January/February 1999): 44.
- Illig, David C. *Reducing Class Size: A Review of the Literature and Options for Consideration*. Sacramento, California: California Research Bureau, California State Library, 1996. 15 pages.
- Jacobs, R. "The Effect of Class Sizes of 1:15, 1:25 and 1:25 Plus Full-Time Aide on Kindergarten Reading Readiness Achievement." *Dissertations/Theses—Doctoral Dissertations* 41 (1987): 1-186. ED 326 863.
- Johnston, J.M. *Relations Between Reduced Class Size and Reduced Teacher/Pupil Ratio and Developmentally Appropriate Practice in Kindergarten Through Third Grades*. Boston: American Educational Research Association, 1990. ED 317 278.
- Joint Legislative Audit Committee. *California's Public Schools: A Needs Assessment*. Sacramento, California: Author, 1999.
- Kirst, Michael. *A Plan for the Evaluation of California's Class Size Reduction Initiative*. San Diego, California: Policy Analysis for California Education, Rand Corporation, American Institutes for Research, WestEd, April 1998.
- Lewis, Anne C. *Making Class Size Reduction Work: Stories from California's Public Schools*. Arlington, Virginia, and Sacramento, California: Educational Research Service and Association of California School Administrators, 1997. 81 pages.
- McGiverin, J.; D. Gilman; and C. Tillitski. "A Meta-analysis of the Relation Between Class Size and Achievement." *The El-*

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- ementary School Journal* 90, 1 (1989): 47-56.
- McRobbie, Joan; Jeremy D. Finn; and Patrick Harman. "Class Size Reduction: Lessons Learned from Experience." *Policy Brief No. 23*. August 1998. http://www.wested.org/policy/hot_top/csr/ht_hm_csr.htm
- Mitchell, D. *How Changing Class Size Affects Classrooms and Students*. Riverside, California: California Educational Research Cooperative, 1989. ED 315 841.
- Murnane, Richard J., and Frank Levy. "Evidence from Fifteen Schools in Austin, Texas." In *Does Money Matter? The Effect of School Resources on Student Achievement and Adult Success*, edited by Gary Burtless. 93-96. Washington, D.C.: Brookings Institution Press, 1996. ED 399 654.
- National Commission on Time and Learning. *Prisoners of Time*. Washington, DC: U.S. Government Printing Office, 1994. 59 pages. ED 366 115.
- Nye, Barbara A.; L.V. Hedges; and S. Konstantopoulos. "The Long-Term Effects of Small Classes: A Five-Year Follow-up of the Tennessee Class Size Experiment." *Educational Evaluation and Policy Analysis* 21,2 (Summer 1999): 127-42.
- Odden, A., and C. Busch. *Financing Schools for High Performance*. San Francisco, California: Jossey-Bass, 1998.
- Pate-Bain, Helen; C. M. Achilles; Jayne Boyd-Zaharias; and Bernard McKenna. "Class Size Does Make a Difference." *Phi Delta Kappan* (November 1992): 253-56.
- Perez, Katherine D. *The ABC's of Class Size Reduction: Where Are We?* California Association for Supervision and Curriculum Development, 1998. <http://www.cascd.org/class.html>
- Robelen, Erik W. "Department Unveils Guidance on Class-Size Initiative." *Education Week* 18, 27 (March 17, 1999): 20, 36.
- Sack, Joetta L. "GOP Teacher Bill Attracts Some Democratic Supporters." *Education Week* 18, 43 (August 14, 1999): 29, 31.
- Shields, Patrick M.; Camille E. Esch; Daniel C. Humphrey; Viki M. Young; Margaret Gaston; and Harvey Hunt. *Teaching and California's Future. The Status of the Teaching Profession: Research Findings and Policy Recommendations. A Report to the Teaching and California's Future Task Force*. Santa Cruz, California: The Center for the Future of Teaching and Learning, 1999. 158 pages.
- Smith, M.L., and G.V. Glass. "Meta-Analysis of Research on Class Size and Its Relationship to Attitudes and Instruction." *American Educational research Journal* 17, 4 (1980): 419-33.
- U.S. Department of Education. *Reducing Class Size: What Do We Know?* Washington, D.C.: Author, 1998. 17 pages. www.ed.gov/pubs/ReducingClass/
- Varble, Mary Ellen, and David Alan Gilman. *A Study of the Relationship Between Class Size and Achievement*. Terra Haute: Indiana State University, 1988. ED 291 527.
- Word, Elizabeth. *Student/Teacher Achievement Ratio (STAR) Tennessee's K-3 Class Size Study. Final Summary Report 1985-1990*. Nashville: Tennessee State Department of Education, 1990. 35 pages. ED 320 692.
- Ziegler, Suzanne. "Class Size, Academic Achievement, and Public Policy." *Connections* 1, 1 (November 1997): 1-8.

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