

# BEYOND SMOKE AND MIRRORS:

## *A Critical Look at Smaller Class Sizes*

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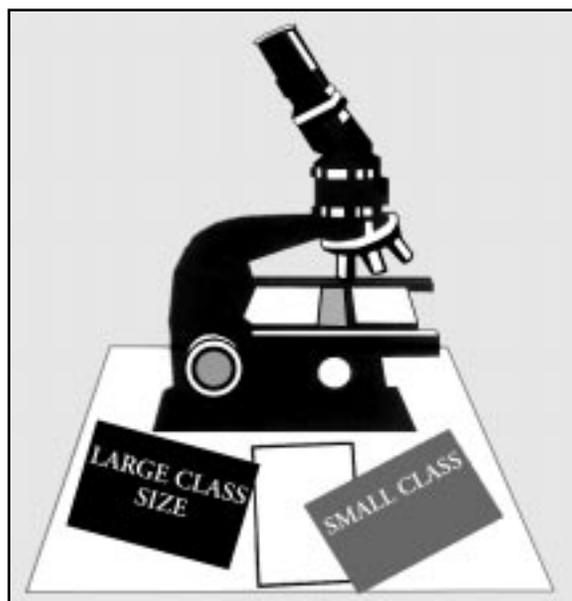
In the cornucopia of education reforms, a very tempting fruit has become the reduction of class size in primary education. Although class sizes in the United States have fallen for the past 45 years,<sup>1</sup> the push is on for further reductions. And Wisconsin has joined in the crusade. As of the 1998-99 school year, 78 elementary schools in the state will share \$14.75 million

in additional state funds to reduce class sizes in the early primary grades, ostensibly in an effort to improve student achievement.

Popular among politicians, teachers, parents, teachers unions, and many others, reducing class size looks like a “no-brainer” to most people. Smaller simply means better. Yet the exercise of class size reduction is one that requires “brains,” and certainly a more critical analysis of its true costs and benefits than exists today.

### **The Seduction of Smaller Classes**

The idea of reducing class size carries considerable appeal because it relies on presumably strong elements of common sense. It is believed that if a teacher has fewer students in a class, then each individual student will



naturally receive more attention and individualized instruction, and therefore learn more. Additional benefits are assumed in teachers being able to better maintain discipline, by improving teacher morale, and by increasing student participation.

Not unexpectedly, these perceived benefits have caused many teachers to applaud smaller

classes. A 1997 *Education Week* survey found 83 percent of teachers and 60 percent of principals believe class size should not exceed 17 students. According to a Milwaukee Teacher's Education Association survey conducted last spring, 90% of responding teachers say they have too many students in their class to meet the needs of individual students. And the public also shows support for the idea. A March 1997 *Wall Street Journal* poll indicates that 70 percent of adults believe that reducing class size will result in improved education. Finally, a recent public opinion poll of Wisconsin citizens found that 38 percent believed that

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reduced class size would improve student achievement “somewhat,” and an additional 46 percent said it would improve “a great deal.”

There are also abundant examples of an increased policy direction toward reducing class size, both nationally and within Wisconsin. Some of the major initiatives include:

- As part of the 1999 federal budget agreement, the U.S. Congress authorized the spending of \$1.1 billion for states to hire 30,000 new teachers. This action was precipitated by a threat from President Clinton to veto the entire budget if these funds were omitted. The \$1.1 billion is considered a “down payment” on an effort to reduce class size in grades 1 through 3 to an average of 18 students per class. The goal, as represented by one of the original proposals, is to fund \$20.8 billion over ten years for the hiring of 100,000 new teachers.
- Twenty-five states and numerous localities have either enacted or are considering class size reduction efforts ranging from limited programs for just at-risk schools to statewide efforts.<sup>2</sup>
- In 1995, the Wisconsin legislature authorized the Student Achievement Guarantee in Education (SAGE) program, to test the effects of class size reduction in schools that serve a significant number low-income students.
- In July of this year, a Madison civic project called Schools for Hope recommended that class sizes for kindergarten through second grade in Madison be reduced to 15 students in schools where the poverty level is forty percent or higher, while limiting to 20 students in all other elementary schools.<sup>3</sup>
- U.S. Senator Russ Feingold has proposed a \$75 million national class size reduction initiative modeled after the Wisconsin SAGE program. This proposal follows Feingold’s introduction of a resolution to put the Senate on record for recognizing class size as a national educational priority.

Going hand-in-hand with formal policy efforts has been a corresponding amount of activity from those within public education. The Wisconsin Education Association Council,

Wisconsin’s state-level teachers union, has lobbied hard to advance reduction efforts in Wisconsin, largely through the new SAGE program.<sup>4</sup> WEAC stated in its latest resolutions that it “believes that excellence in the classroom can best be attained by small class size. The Council also believes in an optimum class size of fifteen students in regular programs...” Their lobbying efforts have worked effectively. The Governor’s attempt to limit the funding of the most recent SAGE expansion was quickly discarded due to WEAC pressure, and the program continues to receive bipartisan support in the legislature.

These are only a few examples of how influential segments of public education’s labor force confidently tout the need for and benefits of smaller classes. But before policy makers and the public become any more captivated by the apparent merit of small classes, and before the various proposals are adopted and all these funds spent, a more critical look at the issue of class size must be attempted.

### **The Arguments Over Class Size Policy**

Given the preceding volume of support for smaller classes, one may naturally question how there could be any disagreement over the policy. Yet a debate over the effectiveness and merit of class size reduction in K-12 schools has actually been carried on for most of this century. A summary of the major arguments for and against smaller class policies is provided in Table 1. A look at these different contentions shows both the greater depth of this issue, and the legitimate claims that remain undiscovered by a simple deference to the conventional wisdom of smaller classes. The arguments on both sides have also been replete with research efforts attempting to conclusively determine if class size matters, and if so, in what ways and under what circumstances. Unfortunately, at least for those searching for a simple yes or no answer, the results have been equivocal.

A sampling of some noteworthy studies shows:

**TABLE 1 The Possible Effects of Smaller Classes**

Support for Smaller Classes	Opposition to Smaller Classes
<ul style="list-style-type: none"> <li>• Creates more opportunities for teachers to focus on the needs of individual students.</li> <li>• More opportunities for students to actively participate.</li> <li>• Fewer problems of classroom management, including discipline troubles. This allows for more time spent on teaching.</li> <li>• Higher morale among teachers and students. A more family-like atmosphere is created in the classroom.</li> <li>• May allow teachers to use innovative practices that they would be less likely use in larger classes.</li> </ul>	<ul style="list-style-type: none"> <li>• Most teachers do not teach very different in class sizes of around 15 students as opposed to larger classes (22-25).</li> <li>• Sometimes lower quality teachers are used to fill the need of smaller classes.</li> <li>• Besides personnel investments for new teachers, school facility capacities will eventually have to be expanded, which can be very costly.</li> <li>• The non-achievement effects witnessed by teachers and students are not translated into significant improvement in academic achievement.</li> <li>• Costs used to achieve smaller class sizes are better spent on improving teacher skills and competencies, which are shown to have a greater impact.</li> </ul>

- The National Conference of State Legislatures, a non-partisan organization that provides information to all 50 state legislatures, concluded that “[a]lthough over 1,100 studies examine the relationship between class size and student achievement, no definitive conclusions have been reached. While positive results have been demonstrated in Tennessee and Wisconsin, other research finds little connection between student-teacher ratios and student performance, especially when measured against other types of educational reforms.”<sup>5</sup>
- Looking at trends involving student performance, econometric evidence, international comparisons, and analysis of state-level data, Eric Hanushek, Professor of Economics and Public Policy at the University of Rochester, concluded: “Existing evidence indicates that achievement for the typical student will be unaffected by instituting the types of class size reductions that have been recently proposed or undertaken. The most noticeable feature of policies to reduce overall class sizes will be a dramatic increase in the costs of schooling, an increase unaccompanied by achievement gains.”<sup>6</sup>
- Robert Slavin, Director of the Center for Research on the Education of Students Placed At Risk and Professor at Johns Hopkins

University, explains that when only valid studies on the effects of class size are analyzed, the evidence shows that “substantial reductions in class size do generally have a positive effect on student achievement, but the effects tend to be small.” He also stated that teachers may change their behavior while teaching in a smaller class, but it is usually only in subtle and insignificant ways.<sup>7</sup>

- Glen Robinson, former President and Director of Research at the Educational Research Service, a non-profit organization that provides objective research and information on education issues, performed a similar meta-analysis of the class size research and stated that “research does not support the expectation that smaller classes will of themselves result in greater academic gains for students.”
- Allan Odden, Professor of Educational Administration at the University of Wisconsin - Madison, has stated that smaller classes should be used “sparingly and strategically,” and that there are more cost-effective means available to achieve the results of smaller classes, without requiring large amounts of new funds.<sup>8</sup> Odden reviewed data on programs in Tennessee and Indiana, and concludes that these studies show “that new and costly state programs that reduce class size to under 20

students do not produce very large gains in student performance.”<sup>9</sup>

These equivocal results, and the resulting skepticism, challenge the conventional wisdom about smaller classes. As a simple intellectual exercise, one recognizes that making classes smaller does not *by itself* improve student learning. Even proponents of reductions explain the process in terms of how the smaller classes enable conditions for both students and teachers to interact more productively, *thereby* improving the students’ learning experiences and achievement. The main pedagogical issue therefore is how class sizes, on the margin, truly affect relevant learning activities within a classroom. But involved in this calculus are many other relevant variables involving teacher quality, which are arguably more important. This reality leads one education scholar to conclude that “perhaps children would be better served if the quality of instruction was viewed as more important than the number of children instructed.”<sup>10</sup>

Overall, these examples draw attention to the questionable assumptions supporting smaller classes, and if heeded could further a more constructive dialogue on the topic. They point to legitimate concerns about the extraordinarily high costs of creating smaller classes and the subsequent meager level of improvement they generate. Certainly, there are other studies that have concluded in favor of the positive effects of smaller classes. Two of the most prominent - the evaluations of the Tennessee STAR and Wisconsin SAGE programs - will each be discussed in more detail. But even the results of these programs must be tempered by a disciplined look at what they actually do show, as opposed to what they just purport to conclude.

### **A STAR is born**

The class size debate was intensified by the implementation of Tennessee’s Project STAR (Student-Teacher Achievement Ratio). This program, considered the seminal experiment in class size reduction, was a four year, longitudinal study of kindergarten through third grade classrooms in the state that began

in 1985. STAR compared classes of 13-17 students with classes of 22-26 students both with and without an additional instructional aid in the larger classes. Students stayed in the smaller classes from grades K through 3, were tested each year of the program, and had their performance tracked after they returned to larger classes.

It is nearly impossible to discuss the effects of class size reduction without referencing the STAR results and the conclusions generated from them. At least that is certainly the case for reduction promoters. STAR is the absolute boon to advocates of smaller classes. According to Frederick Mosteller, a Harvard statistics professor and one of its primary researchers, “[STAR] definitively answers the question of whether reduction from this size to that size does make a difference, and clearly it does.” In general, the results showed that students in the smaller classes scored better on standardized tests than their counterparts in larger classes, but that advantage diminished in the years following their return to regular classes.

Yet STAR is simply not the definitive answer that it is always put forth as by reduction advocates. The *Peabody Journal of Education*, published out of Vanderbilt University, committed an entire issue to the analysis of the STAR program, and its primary conclusions (summarized in Table 2) are not as flattering as those commonly offered. Moreover, other analyses of the STAR findings have echoed the *Peabody* conclusions. One of the main issues is that achievement differentials between students in small and regular classes mostly occur for students in only the first year, with the gap *not growing* during subsequent years of exposure to smaller classes. This fact suggests just a one-time impact from smaller classes during the first year of a child’s formal schooling. The STAR findings also offer no insight into the effects of reductions to a lesser degree, somewhere less than the one-third reduction down to 15 students done in STAR. Appropriately, Hanushek concludes in his analysis that “[t]his policy interpretation is quite different from that commonly attributed to the STAR analysis, which many cite when

**TABLE 2 Lessons from Project STAR**  
**Peabody Journal of Education**

1. The maximum effect of reducing class size is in kindergarten and first grade. The effect on achievement levels off and declines in second and third grade even when students remain in smaller classes.
2. The achievement advantage of small class students dropped about 50% the first year after they were back in regular sized classes (21-28 students) in the fourth grade.
3. Class size reduction appears to be very expensive. The cost of reducing class size is proportional to the size of the reduction: i.e. a one-third reduction in class size will increase per pupil costs about one-third.
4. The high costs of substantial reduction in class size and the modest achievement gains that can be expected, even in kindergarten and first grade, suggest that less expensive targeted reductions should be tried.
5. The most important lesson may be that just changing class size without changing what is taught or how it is taught will probably have modest results, because the various factors all influence achievement.

Source: Folger, John. *Lessons from Class Size Policy and Research*. *Peabody Journal of Education*, Vol. 67, No. 1, Fall 1989.

they wish to justify any sort of reduction in class size at any grade level.”<sup>11</sup>

Additionally, there seems to be a lamentable level of exaggeration used while reporting of the magnitude of the STAR achievement results, especially by its most vehement supporters. Repeatedly heard are claims that students in the small STAR classes outperformed students in regular sized class by “significant” margins. In these comments, the reference is to the idea of statistical significance. The interpretation of statistical significance is clear, but unfortunately its relevance can be easily presented to the public in a disingenuous manner. Statistical significance simply means that some difference, *no matter how small in magnitude*, can be expected to exist in reality to a high probability. But differences that are statistically “significant” to the mathematician can easily be insignificant to the common understanding of the term. This is the case with the STAR data, where the actual size of the effects ranges from minimal to small, depending on the test and subject.<sup>12</sup> On top of all this, what is known about the STAR results is only based on that which has been disseminated by the project’s own researchers, as the

data has yet to be made available to most other researchers for more critical analyses.

Despite these and other reservations about the STAR results,<sup>13</sup> the program continues its role as the popular defender of smaller classes. And based on the favorable presentation of the STAR evidence, other states have used the program as validation and a blueprint for their own programs, including Wisconsin.

### **Wisconsin’s Experiment in Class Size Reduction**

Wisconsin initiated its own class size reduction effort in 1995 through the creation of the Student Achievement Guarantee in Education (SAGE) program. A summary of the its essential elements are outlined in Table 3, including costs, design, implementation, and initial results. SAGE is being evaluated by the Center for Urban Initiatives and Research (CUIR) at the University of Wisconsin - Milwaukee, under contract with the Wisconsin Department of Public Instruction. The first annual evaluation report was released in December of 1997 and it focused primarily on identifying what differences, if any, exist in student achievement between SAGE schools

**TABLE 3 The Wisconsin SAGE Program**

**Legislative History:**

- Grew out of recommendations of the Department for Public Instruction's 1994 Urban Initiative Task Force, which aimed at finding ways to improve the education of low-income children in public schools.
- Superintendent Benson's original plan called for \$170 million over eight years to reduce class sizes in kindergarten through eighth grade in most urban schools.
- In 1995, the Wisconsin legislature and Governor Thompson enacted the SAGE program under Wisconsin Statute 118.43.
- As part of the Governor's original 1997-99 biennial budget proposal, funding would have been frozen at the first year levels. After significant lobbying by WEAC and other SAGE supporters the funding was agreed to be expanded.
- In 1998, the legislature expanded SAGE to 2nd and 3rd grades in the original 30 participating schools, and added 48 new schools to the program.

**Major Elements of the Program:**

- To be eligible, a school district must have at least one school with a poverty rate of 50 percent or more. The district then may choose to develop a 5 year SAGE contract for that school and any other with a poverty rate of at least 30 percent, for up to a total of 2 schools in any district, except Milwaukee which may have up to 10 schools.
- Schools that receive SAGE funds are required to:
  - 1) Reduce class size to 15 in grades K through 3, through staggering the reductions through the first three years of the program.
  - 2) Establish a "lighted schoolhouse" by keeping the school open more hours of the day and collaborating with community organizations for various social services.
  - 3) Provide a rigorous academic curriculum to improve academic achievement.
  - 4) Establish staff development and accountability systems.
- Under the current expansion of the program, nearly 11,000 students will be involved in the participating schools.

**Program Costs:**

- Provides participating schools up to \$2,000 in aid for each low-income child.
- In the 1996-97 school year, the first year of operation, the program was allocated a total of \$4.4 million for 30 schools in 21 school districts.
- As part of the 1997-99 biennial state budget, \$12.8 million was provided over the biennium to fully fund the SAGE program for the current 30 schools and all additional eligible schools. The extra funding will come from state aid for other school districts.
- For fiscal year 1999, \$15 million was allocated to the program. Approximately \$9 million of that will fund the expansion to 2nd and 3rd grades in the original 30 SAGE schools, and the remaining \$5.7 million is to be allocated to the 48 new SAGE schools.
- \$250,000 for evaluation of the program beginning in the 1996-97 school year.

**First Year Evaluation Results:**

- First graders in 30 SAGE schools scored higher on reading, language arts, and mathematics tests than did students in 16 comparison schools. The difference averaged between the subjects was about 12-14% for all students. The largest improvement was for African-American males, whose scores improved by 40% over similar students in regular classes.
- Based on interviews, SAGE classrooms reported fewer disciplinary problems, which the teachers claimed freed them up for more classroom instruction. Teachers also pointed to their ability to focus on individual student needs as one of the greatest benefits of smaller class sizes.

and comparison schools. On first glance, the results reported in the evaluation mirror the positive findings proffered by the STAR program, including higher achievement for students in smaller classes, particularly for minority students.

But there are some important caveats of the SAGE program and its results that must be considered. *First*, like the earlier discussion of STAR and its “statistically significant” results, SAGE’s aggregate gains barely pass the standard for statistical significance commonly used in the policy research field, and even so, the magnitude of the difference is very small.

*Second*, SAGE’s class size reductions can be misguided if their impact is to have lower quality teachers being used to achieve the lower student-teacher ratios. One of the most distressing side-effects of California’s Class Size Reduction program (CSR) was that many of the higher quality teachers left at-risk schools to fill the new openings in suburban schools, leaving the low-achieving urban districts with teachers whom were often the least experienced and least qualified. According to a California Legislative Analyst’s Office report, 24 percent of teachers hired for CSR do not have a teaching credential, and an additional three percent of new CSR teachers were hired on waivers that require even *less* in terms of qualifications.<sup>14</sup> The impact of this class size reduction policy was to expose more students to lower quality instruction, which simply offsets any gains from the smaller classes. This effect is especially noteworthy since research repeatedly shows that it is the quality of teachers and their skills that more greatly impact student learning - more than smaller classes.

This concern over the quality of the newly hired teachers is genuine, albeit not widely publicized. The latest federal budget initiative to eventually hire 100,000 new teach-

ers explicitly states the need to use portions of the money to recruit and train these new teachers. Nevertheless, one may have a hard time believing that reduction proponents will actually set, much more enforce, truly rigorous standards for the newly hired teachers, if doing so causes fewer teachers to be hired. While this problem is probably not significant within the current small scale of SAGE, it may materialize if the program continues to expand (whether to more grades or to more schools). In particular, one must consider the dynamics of the student-teacher ratio in the Milwaukee Public School System, where there is an impending teacher shortage. The MPS already had to scramble at the beginning of this school

year to supply enough teachers, and the MPS student population is expected to rise seven percent in the coming year. A district having difficulty finding teachers to simply maintain current class sizes certainly does not seem equipped for adding even more teachers to reduce class sizes. In any event, the issue should not be simply placing more teachers in schools, but ensuring that those new teachers are of high quality once in

the classroom. A good teacher teaching 24 students can certainly be more effective than a bad teacher teaching 15 students.

*Third*, much more information needs to be discerned about the program’s continued effects. SAGE’s first year results must be viewed in light of what has been learned from the STAR study. In particular, STAR showed that while there was a small achievement gain in kindergarten, the small classes in subsequent grades did not *add* to that gain, relative to students in larger classes. Therefore, CUIR’s first year results may have just captured that phenomenon. If SAGE maintains similar results, then perhaps classes in the second and third grades do not have to be reduced in size.

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Such a policy move would cut the program's cost by about half without greatly diminishing its effects - a more cost-effective use of SAGE funds. In any event, the current results certainly do not justify wholesale class size reductions in more grades.

*Fourth*, we are left with the important question of what is actually driving any improvements witnessed by the SAGE program. Although the class size component receives nearly all of the attention, there are three other parts of the SAGE program that may be at play. In fact, one wonders what establishing a rigorous academic curriculum, and creating staff development and accountability systems would do in the absence of smaller class sizes. If all these activities are being implemented, it is extremely difficult to distinguish what the independent effects of each component might be.<sup>15</sup>

*Fifth*, much more attention has to be drawn toward the costs associated with the SAGE initiative, relative to its impact. The program offers a participating school up to \$2,000 per low-income student on top of the initial per-pupil expenditure of \$6,930, based on the state average. But can this money be better used for educational purposes? Again, research suggests the answer may be yes. One recent study has shown that when measuring the effect of a \$500 investment per student, spending on teacher education had the greatest impact on student achievement, while lowering the student-teacher ratio was found to have a smaller effect than increasing teacher education, teacher experience, and teacher salaries.<sup>16</sup>

Despite these concerns, heavy lobbying by the state teachers unions and an overzealous reading of the first year SAGE evaluation have allowed the program to gain momentum. SAGE has already expanded this year through the third grade in the 30 originally participating schools and has added 48 new schools. The public investment for this new year of SAGE stands at \$15 million. But is expanding SAGE really a sagacious idea? Considering the existing evidence, there is ample room for doubt.

### **See no Evil, Hear no Evil, Speak no Evil**

It is not surprising that there is debate about class size policy and the merit of smaller classes. Class size debates can easily be placed within the common political tension between those who typically support greater monetary investment in the public schools, and those who believe that other, generally non-revenue related issues need to be addressed to promote academic improvement. What is so surprising is the degree to which advocates of smaller classes fail to look at the issue critically. The existence of ambivalent research has not stopped reduction proponents from uncritically trumpeting its cause, and riding the train of conventional wisdom to advance the idea to the public. In this state, WEAC has been the leader of the cause, and has remained highly incredulous to the evidence opposed to class size reduction. By failing to separate blanket advocacy from critical analysis, these parties fail to inform the public about the intricacies of class size, both as a singular issue, and also its place in the education policy matrix. Nowhere is this last point more evident than the nearly complete avoidance of class size policy through the metric of cost-effectiveness.

Fans of smaller classes probably avoid looking at class size through the lens of cost-effectiveness to elude the difficult prospect of supporting some costly initiatives at the expense of other efforts, which are equally noble in their minds. WEAC President Terry Craney states, "SAGE is an example of what can be accomplished when we commit resources directly to children, where they are needed the most."<sup>17</sup> That certainly seems reasonable. But then why not garner the funds needed for class size reductions by cutting back on other, non-classroom expenses, such as administrative staff and their salaries? But SAGE also competes for other forms of "direct classroom resources" such as teacher salaries, teacher training, school supplies and classroom materials, and other items that may have a more direct impact on student achievement.<sup>18</sup> When will these tradeoffs be recognized? Probably not until they are internalized in some way by those who most benefit from

the receipt of all those funds. Not only is it easier to spend other people's money, it's easier to ask for more if you don't have to give up something in exchange.

Smaller classes may very well make it easier for teachers to do their job. But the relevant question to policy makers is not simply if class size reduction increases student achievement. What must be asked is if the necessary investment to decrease class sizes - to the point at which the effect of those reductions produce the results desired - could be better spent on other education initiatives. This tradeoff is the nexus of public policy decisions, and it is high time the class size debate takes up this important form of analysis.

#### NOTES:

1 Since 1955 the average class size (not simply pupil-teacher ratio) has declined from 30 to 20 students. See Tommy Tomlinson (1990). "Class Size and Public Policy: The Plot Thickens." *Contemporary Education*. Vol. LXII, No 1.

2 States reported to have begun or are considering class size reduction efforts include: Arizona, California, Connecticut, Florida, Georgia, Hawaii, Indiana, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Nebraska, New Hampshire, New York, Nevada, North Carolina, Oklahoma, Pennsylvania, Tennessee, Utah, and Wisconsin. Source: *Reducing Class Size: What Do We Know?* United States Department of Education (1998).

3 *Wisconsin State Journal*, July 14, 1998.

4 To view WEAC's lobbying efforts, opinions and writings dealing with SAGE and class size, visit their internet site at: <http://www.weac.org/capitol/sagepage.htm>.

5 National Conference of State Legislatures. *Class Size Reduction*. [www.ncsl.org/programs/educ/class.htm](http://www.ncsl.org/programs/educ/class.htm).

6 Hanushek, Eric A. (1998). *The Evidence on Class Size*. Rochester, NY: University of Rochester, W. Allen Wallis Institute of Political Economy.

7 Slavin, Robert E. (1989) "Class Size and Student Achievement: Small Effects of Small Classes." *Educational Psychologist*, Vol. 24; Slavin, Robert E. (1990) "Class Size and Student Achievement: Is Smaller better?" *Contemporary Education*, Vol. 62, No. 1.

8 Some of these options include: peer tutoring (in the context of early primary students this would likely involve students in later primary grades assisting kindergarten through third graders); reading and language arts recovery programs for low-achieving students, and schedule shifting to allow for 30 minutes of the day for specialized instruction from smaller classes (half the students show up thirty minutes early and half stay thirty minutes late).

9 Odden, Allan. (1990). "Class Size and Student Achievement: Research-Based Policy Alternatives." *Educational Evaluation and Policy Analysis*. Vol. 12, No. 2.

10 Heather Hardner (1990) "A Critical Look at Reduced Class Sizes." *Contemporary Education*, Vol. 62, No. 1. p. 29.

11 Hanushek, 1998, p. 30.

12 For a more detailed discussion of the statistical treatment of the STAR data turn to: Flake, VonDohlen, and Gifford. (1995) "Class Size and Student Achievement: Is There a Link?" Arizona Issue Analysis Report #135. Goldwater Institute: Phoenix, Arizona.

13 Other widely noted concerns over the STAR study involve the possibility of biased results due to the Hawthorne effect and self-selection. In terms of the Hawthorne Effect, there are concerns whether the participating teachers and schools, knowing that they were part of this highly publicized study, altered their behavior in ways beyond that which would have occurred if the program changes had occurred without this motivating force. Similarly, the second concern involves the method with which schools could be selected to participate in the program - namely, schools volunteered. Schools did need to have at least one of each types of classrooms (small, large and large with aid), which did enhance the experimental design, but the self-selection process could bias the results from the use of "eager" schools as opposed to all schools.

14 For a complete discussion of this impact in California, turn to: *Class Size Reduction Program: Policy Brief*. California Legislative Analyst's Office. February, 1997.

15 Interestingly, the CUIR evaluation confronts this issue by suggesting that during the first year the other components were not being fully implemented. Even disregarding the fact that this blatantly violates the SAGE contract, such an argument certainly does not directly address the confounding effects these other program elements may have.

16 Advocates of SAGE present arguments for how the program actually will save money in the long run through savings on special education and less need to hold failing students back, since the improvements realized by the smaller classes are great enough to overcome the factors that would have caused the student to be held back. Such a reading of the effects may be a reach, but even so, it doesn't include students who would not have been held back in the absence of exposure to smaller SAGE classes, which is presumably a greater proportion of that student population. Overall, this defense needs to be better accounted for if it will counteract the cost concerns.

17 Quoted from a December 8, 1997 WEAC news release, available at: <http://www.weac.org/News/1997-98/DEC97/SAGE.htm>

18 The point is exemplified by comments from two members of the Milwaukee Public School board in the context of the recent MPS teachers' contract. According to the September 24, 1998 *Milwaukee Journal Sentinel*: "The two board members who opposed the contract, John Gardner and Thompson, described it as going backward on some school reforms. They said it will cost so much money, particularly for a provision related to pensions, that efforts to reduce class size and make other changes will suffer."