

CALIFORNIA INDEX OF LEADING EDUCATION INDICATORS 2000 EDITION

Introduction

In 1997, the Pacific Research Institute for Public Policy (PRI) issued the first edition of its *California Index of Leading Education Indicators*. The *Index* not only gathered and presented data on topics ranging from student test scores to teacher quality to government education spending, it provided unique analysis of the data using historical and national comparisons, alternative statistical methodologies, and fresh interpretive devices.

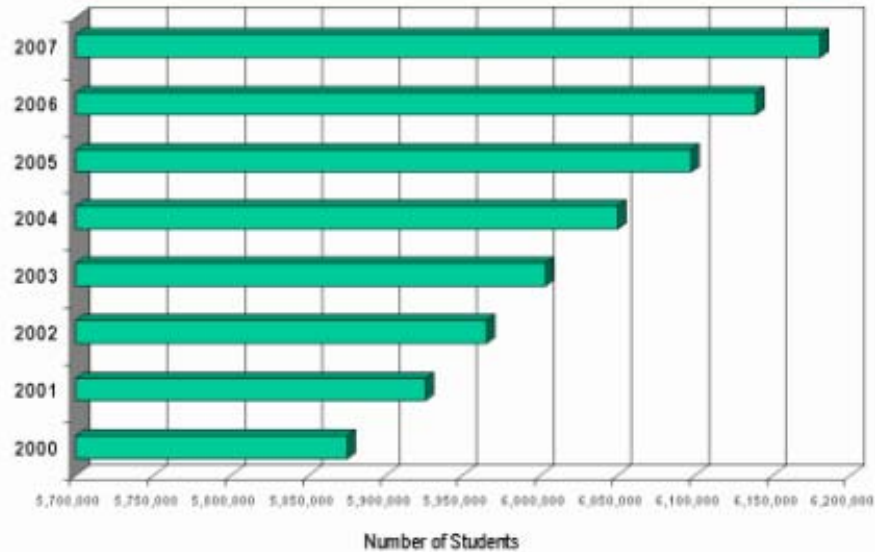
The 1997 *Index* was well received by lawmakers, educators, parents, and the media, and led directly to important education reforms. For example, according to *Forbes* magazine, data contained in the *Index* on the failure of bilingual education in California "inspired Ron Unz to spearhead a referendum drive aimed at ending the current policy of teaching Limited-English-Proficient (LEP) students in their own language."¹ Unz's initiative, Proposition 227, eventually passed with 61 percent of the vote. Also, the *Index's* critique of the California Department of Education's (CDE) flawed dropout-rate methodology contributed to the State Board of Education's decision to order the Department to revise its methodology to reflect more accurately the actual numbers of dropouts, which was higher than claimed by the state.

This new 2000 edition of the *Index* contains updated statistics, information on new topics such as direct instruction, and content and performance standards. Like its predecessor, the new edition seeks to answer fundamental questions concerning education in California. Is student achievement increasing or decreasing, and why? How much bang for the buck is California getting from its government education spending? What reforms hold the most promise in improving the performance of both students and school personnel? These and other questions will be addressed in the following pages.

Demographics and Capital Requirements

California's K-12 student population continues to rise, but the projections of future growth are not as high as estimated a few years ago. Between 1977 and 1997, the total public K-12 student population grew from 4.16 million to 5.63 million. In 1995, the California Department of Finance (CDF) projected that by the year 2004, total public K-12 enrollment would be nearly 6.4 million. In its most recent projection, however, issued in 1998, CDF estimates that by 2004 total enrollment will be 6.05 million—a drop of 350,000 students from the prior estimate. In fact, by the year 2007, the CDF estimates that K-12 enrollment will be 6.18 million.

Figure 1
Projected K-12 Enrollment



Source: California Department of Finance

This drop in projected enrollment increase has important fiscal implications regarding school facility needs. The CDE calculates new school construction needs based on a formula of \$12,000 per student plus land costs of \$3,000 per student. Using that formula, the decrease of 350,000 students between the two CDF projections constitutes a drop of \$5.25 billion in new construction costs. The estimated need for state school building funds, which consist of modernization funds, deferred maintenance, class-size reduction, air conditioning, and child care, will also be reduced. The total of these reductions in estimated need for school building funds could reach three times the drop in new construction needs.

These reductions, it should be noted, are reductions in *increases*. Between 1998-99 and 2003-04, K-12 enrollment is still projected to grow by about 270,000 students. With mandatory reductions in class size to 20 students per classroom in grades K-3, and attempts to expand the program to other grades, there will still be a significant need for added school facilities. Again, based on the CDE's new-construction-needs formula, it is estimated that the added 270,000 new students will require \$4.05 billion in funding for new construction. Also, \$12.8 billion will be required for state school building funds. The cost of new construction needs for the period between 1998-99 to 2003-04, plus the estimated need for state school building funds, totals \$16.85 billion.

As a sidebar, it is interesting to note the impact of immigration on the need for school facilities. Today, approximately 25 percent of California's student population—1.4 million students—has limited proficiency in English. One can assume that nearly all of these students are either immigrants themselves or the children of new immigrants. Immigration, therefore, has been hugely responsible for the increase in California's student population in recent years. As one recent report noted, nearly 1.8 million immigrants entered California between 1990 and 1997, "and their children will continue to flood classrooms in some districts."²

Had the federal government carried out its responsibility to stop illegal immigration and addressed the issues of legal immigration, California taxpayers would not be facing the massive expense of providing thousands of new classrooms.³ Discussing the need for more school facilities without also discussing the main source for that need, therefore, misleads the public by artificially limiting the scope of the problem and the field of possible solutions.

Immigration reform, however, will require federal action. For state officials and policymakers, the question is still how best to provide these facilities absent such federal action. Many in the political and educational establishment wish to increase government school construction revenues by lowering the passage requirement for local-school-bond ballot measures from the current two-thirds vote to a simple majority. Indeed, an initiative advocating such a change will appear on the state ballot in 2000.

The two-thirds requirement has been in the California Constitution since the 19th century. California has coped with high population growth in the past, so why the move to change things now? Part of the reason is perception. The popular view is that because of the two-thirds requirement, most local school bond measures fail. Yet, from 1986 to 1998, a majority of local school bonds (368 out of 691) received the requisite two-thirds vote. Indeed, in recent years, the passage rate has been quite high. In 1998, 71 out of 118 local school bond measures, more than 60 percent, received a two-thirds voter approval.

The two-thirds requirement does, however, force local school districts to make a solid case to the public that bond money is really necessary. Are current tax dollars being well managed by districts? Is there significant waste of tax money? Have other alternatives been considered and exhausted? For a bond to pass with a super-majority, school officials must answer satisfactorily these and other critical questions. The two-thirds requirement, therefore, acts as an important incentive for school districts to operate efficiently and to account for their performance.

The other major reason why so many politicians and school officials wish to change the rules has to do with political expediency. State officials take less criticism if they ask voters to pass a bond than if legislators themselves enact a tax increase. Further, by funding school facilities through bond revenues, state lawmakers avoid including school construction in annual state budgets in a pay-as-you-go system. By avoiding tough annual decisions about spending priorities (e.g., facilities vs. early childhood education, etc.), lawmakers have more freedom to spend annual budget dollars on other programs. However, as California Taxpayers Association President Larry McCarthy points out, "State-level funding for school facilities is the most equitable method and the most likely to avoid district-to-district disparities."⁴

Although a simple-majority vote on school bonds may be appealing to the political and education establishment, there are important and convincing arguments against it. First, there is the simple fact that bond measures are more expensive than straight tax increases since bonds require taxpayers to pay for both the principal of the bond plus interest.

Further, making it easier to pass local school bonds limits flexibility. Since bonds are paid back over a length of time, taxpayers are committed to paying off the bond even if demographic changes negate the need for extra facilities. Consider the aforementioned changes in the projections of statewide K-12 enrollment. Even though the projections have been revised downward by a significant amount, bonds

based on the overestimated earlier projection would still have to be paid back regardless of whether the facilities end up not being needed after all.

Perhaps most important, going to a simple-majority vote for local school bonds is profoundly unfair because a voting majority can force a small group within the population—property owners—to pay for all or most of the costs of school construction. This unfair situation occurs because the principal and interest on local school bonds will be paid mostly by increases in local property taxes. Had a simple-majority rule for local school bonds been in place from 1986 to 1997, it would have resulted in an increase of \$400 million in property taxes.⁵ The current two-thirds requirement for passage of local school bond measures is, therefore, not meant to be an onerous impediment to school construction, but, rather, to prevent an unfair tax burden from being placed on a minority of the populace.

Further, increased reliance on property taxes for school construction doesn't necessarily help poor school districts. Much of the state's enrollment growth has been in poor urban districts. Yet, poor districts have less valuable property to tax than rich districts. Thus, making it easier to pass local school bonds will not guarantee that construction money will go to areas with the greatest need. This could leave California open to *Serrano*-type lawsuits charging unequal funding of school facilities.⁶

Finally, it is unfortunate that some of California's top elected officials claim, on the one hand, that a simple-majority vote for local school bonds is needed because of increased student enrollment, while, at the same time, they oppose innovative and less costly alternatives such as home study and distance learning. California Governor Gray Davis, for example, campaigned on reducing the two-thirds vote requirement to a simple majority. Yet, in his first year in office, Governor Davis supported and signed a senate bill, SB 434, that severely limited the ability of the state's charter schools—autonomous deregulated public schools—from employing innovative home-study and distance-learning teaching methods.

If eliminating the two-thirds vote requirement on local school bonds is unfair and less than effective, then what should be done to ensure that there is enough classroom space for California's children? State funding through the budget process, reducing school construction regulations, eliminating prevailing wage requirements on school construction, and giving opportunity scholarships to parents so the private sector can absorb some of the increasing student population are better and less costly alternatives.

STAR Test

98-99 STAR Math and Reading Test Results

For years, California had been without a statewide student-performance assessment device. During his second term, then-Governor Pete Wilson pressed for a standardized test that would be administered to all students in California. He eventually succeeded, and for the last two school years (1997-98 and 1998-99), California students in grades two through 11 have taken the SAT-9 (Stanford Achievement Test, Version 9) tests which form the basis for the state's STAR (Standardized Testing and Reporting) program.⁷

The test is administered in the spring and results are reported for each school, district, county, and the state. Individual student scores, however, are not reported. Test subjects in grades two through eight

include reading, mathematics, language, and spelling. Tests in grades nine through 11 include the same subjects as in grades two through eight, except for spelling, and science and social science are added. With the approval of state academic content standards by the State Board of Education, the 1998-99 test included an added set of questions aligned to the state standards in English/language arts and math. These standards-aligned questions are graded separately from the rest of the test.

The SAT-9 test results are published as the national percentile rank (NPR) for the average performance of a group of students (e.g., all California students, all limited-English-proficient (LEP) California students, etc.). One may then compare, for example, the NPR for all California second-graders on the reading test to a national norm that has the national average performance as the 50th percentile. On the 1998-99 second-grade reading test, the NPR for all California second-graders was 43, meaning that these California students ranked seven percentile points below the national average of 50.

In reporting the results, California does account for demographic differences from the national sample group. Whereas 1.8 percent of the national sample are LEP students, approximately 25 percent of California's student population has limited proficiency in English. Given this unique demography, the state's SAT-9 results list separately the average scores for LEP students by grade level.

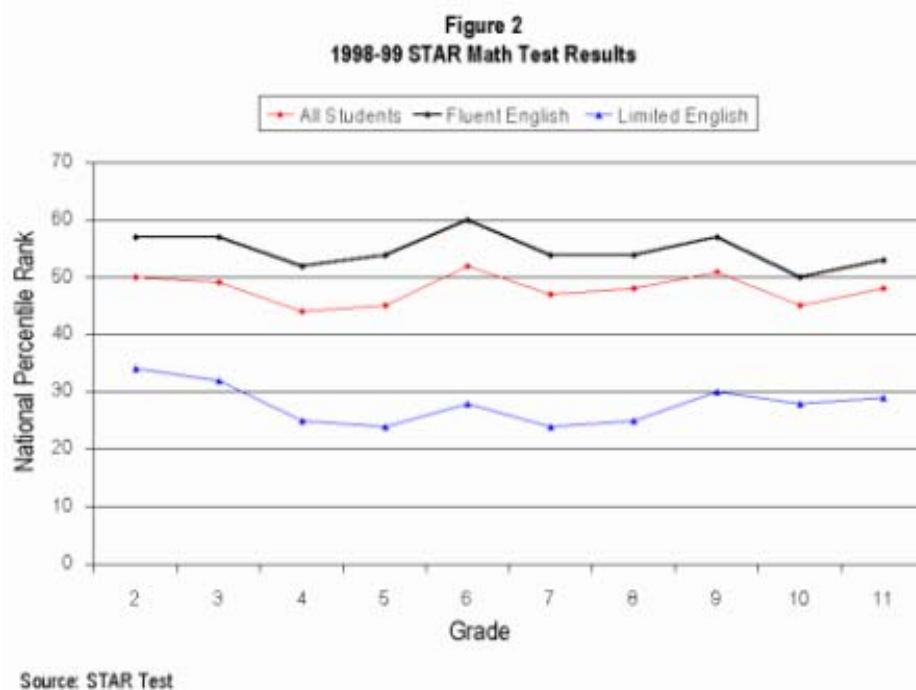
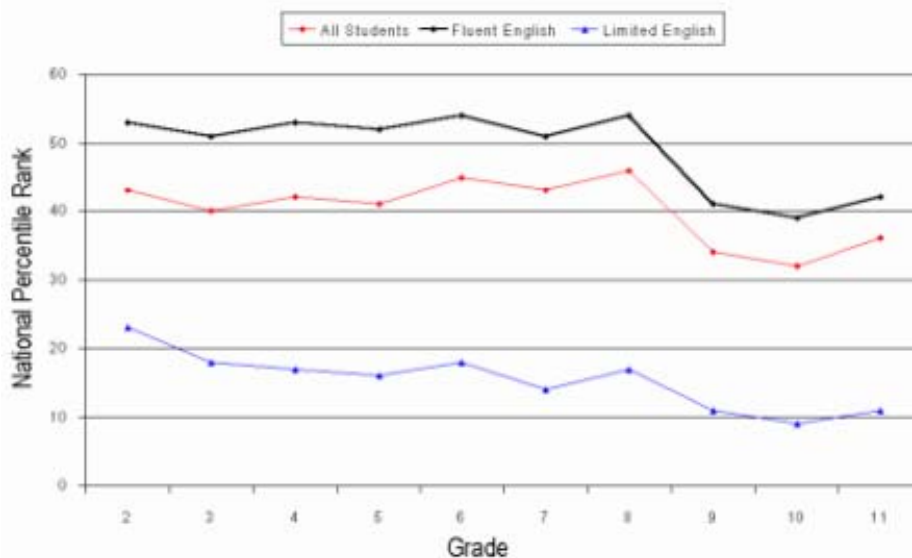


Figure 3
1998-99 STAR Reading Test Results



Source: STAR Test

If one examines the 1997-98 and 1998-99 scores, there are a number of points of interest. First, the average scores for all California students improved incrementally from 1997-98 to 1998-99, especially in the lower grades. For example, among all second-graders, average reading scores increased four points, average math scores increased by seven points, and average language and spelling scores each rose by five points.

Many school districts which showed gains among students in the early grades attribute the improvement not to class-size reduction but to increased emphasis on the phonics method of reading instruction. In the Sacramento City Unified School District, where second-grade reading scores jumped by 15 points, officials credit the phonics-based Open Court reading program now operating in almost all of the district's elementary schools. Scores improved among students across the board, regardless of ethnic or socioeconomic backgrounds. Also, since second-grade math scores showed similar improvement, district officials suggest that improved reading ability is linked to improved ability in other subjects. The bottom line, says District Superintendent Jim Sweeney, is that how and what one teaches children are the keys: "We proved it's not the kids. We didn't change the kids. We changed what we did in the classroom."⁸

The improved reading scores in the early grades, and the role played by phonics instruction in producing them, should be pleasing to former Governor Wilson. It was the Wilson-appointed State Board of Education that adopted rigorous phonics-based state reading standards for the early grades. The then-governor succeeded in directing more state funding into phonics-based reading programs, and Governor Gray Davis has followed suit. Although the full effects of these reforms have not yet been felt at the district and classroom level, if Sacramento Unified's experience is any indication, the end result could be long-term significant improvements in student achievement.

Although there has been improvement in the early grades, there was little or no improvement in the middle and higher grades. Indeed, any minor improvements can be attributed simply to students' familiarity with the testing format.

Further, a disturbing pattern can be seen in the 8th- and 9th-grade reading scores. In both 1997-98 and 1998-99, reading scores plunged once students got to high school. In 1998-99, for example, California ninth-graders scored at the 34th percentile compared to eighth-graders' score at the 46th percentile. Why the nosedive (which isn't seen in math)?

The testing formats in reading for eighth- and ninth-graders are similar. However, at the ninth-grade level, vocabulary and sentence structure are more complicated and the questions require more attention to detail.⁹ Nothing definitive, though, has been offered to explain the scoring drop. However, given that the 1998-99 SAT-9 reading scores for grades nine to 11 were the lowest for all subjects and grades tested, fundamental changes in teaching methodology seem necessary in the higher grades.

Marilyn Astore, assistant superintendent with the Sacramento County Office of Education, says that schools should restructure the school day for low-performing students and substitute their electives with intensive reading instruction.¹⁰ Ms. Astore also says that social promotion has passed too many students through the lower grades without teaching them how to read properly: "We must be honest with these students and say, 'Susie, the system has failed you. We didn't get it right. But we are not going to let this happen to you. We are going to teach you to read.'"¹¹

Although California students as a whole failed to reach the 50th percentile in virtually all grade and testing categories, it should be noted that non-LEP students (students fluent in English) scored, for the most part, at or above the 50th percentile in 1998-99. However, non-LEP students failed to score above the 60th percentile in any testing category at any grade level. Non-LEP students, therefore, may be performing around the national average, but they are far from performing at the world-class level that California officials claim is their goal.

However, LEP students, who constitute almost a quarter of the state's student population, failed to score above the 35th percentile in any grade in any subject in either test years. LEP students did show improvement from 1997-98 to 1998-99. Like their non-LEP counterparts, score increases were especially marked in the early grades. Among LEP second-graders, the average reading score improved by four points, average math scores improved by seven points, average language scores improved by four points, and average spelling scores improved by six points. Early evidence indicates that Prop. 227, the successful 1998 ballot measure that virtually eliminated bilingual native-language instruction, has contributed significantly to this improvement. (A more detailed explanation of this evidence is contained in the "Limited-English-Proficient Students" section of this study). It should be noted that even pro-bilingual-instruction teachers have been surprised at how fast LEP students have learned English when taught through English-immersion teaching methods.

The improved scores of LEP students in 1998-99 rebut the argument made by some lawmakers and education officials that LEP students should not be tested until they have fully mastered English. Testing LEP students, claim these officials, makes no sense since LEP students do not have the English skills necessary to read and understand the test, which is written and administered in English. The relatively low scores of LEP students, it is also argued, stigmatize LEP students as low achievers.

There have been legislative proposals to exempt LEP students from taking the SAT-9 for two years after their initial enrollment. The San Francisco Unified School District refuses to administer the SAT-9 to LEP students who have been in district schools for less than 30 months.

The improved scores of LEP students, however, show the importance of testing all students, including LEP students. The purpose of testing LEP students is not to destroy their self-esteem, but to obtain benchmarks of performance vital for the evaluation of education reform programs. For example, Prop. 227 requires most LEP students to go through an intensive one-year program of English immersion before they are mainstreamed into regular classes. Does this technique work? Certainly the information obtained through the SAT-9 tests will help in the evaluation of Prop. 227.

The significant improvement in scores of LEP students in the early grades means that something positive is happening in the classroom. In the Lynwood Unified School District in the Los Angeles area, for example, the scores of LEP students increased more than those of English-proficient students. According to the *Los Angeles Times*, "Researchers at UCLA are preparing to spend several months combing the data for some insight into the effects of educational reforms and how much individual classroom practices can account for cases such as Lynwood's."¹² Had LEP students not been tested, however, this improvement would have remained hidden and researchers would not have known that they needed to pinpoint the cause of this improvement.

Overall, the news from the SAT-9 results is not good. Students are performing at or below the national average in most subject areas at most grade levels. There is hope, though, that the significant improvement being seen in the early grades can translate into long-term improvement for the higher grades in the coming years. With the wide variety of new education reforms and programs that have recently been approved, Californians must be wary of future claims that student achievement increased due solely to any particular reform. Only those reforms which show a scientific correlation with increased student performance should receive credit and continued support.

National Assessment of Educational Progress

The National Assessment of Educational Progress (NAEP) tests basic math and reading skills at certain grade intervals (in California, NAEP tests students in the fourth and eighth grades). The NAEP exams are administered in approximately 40 states and are one of the key instruments used to compare the achievement of students across the nation.

NAEP is a matrix-sampling exam. Matrix sampling is a testing technique that assembles different assessment documents covering different aspects of a subject. These are administered to different sample sets of students (in other words, not every student answers the same questions), and aggregate scores for all students are then calculated. The major advantage of matrix sampling is that it allows for very wide coverage of subject content in limited testing time.

Since the NAEP exam uses matrix sampling, it is impossible to compare scores between students, schools, or school districts. This is unlike the SAT-9 exam, which, since all students take the same test and answer the same questions, is designed to allow for such comparisons. The NAEP exam produces statewide data and allows for comparisons of performances among states.

Also unlike the SAT-9 exam, which scores students using a percentile ranking compared to a national norm, students' raw numerical NAEP scores (which are termed "scale scores") are categorized using performance levels of "advanced," "proficient," "basic," and an implied fourth level of "below basic." The National Assessment Governing Board (NAGB), which oversees the NAEP exam, says that to be "advanced," a student must display superior performance. To be "proficient," a student must demonstrate a solid academic performance, i.e., they must demonstrate competency with challenging subject matter, including subject-matter knowledge, application of such knowledge to real world situations, and appropriate analytical skills. In contrast, to achieve the "basic" level, a student need display only partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at that grade level. The NAGB believes that all students should be able to achieve a "proficient" rating.¹³

The NAEP exam was most recently administered in California in 1996 for fourth- and eighth-grade math and in 1998 for fourth- and eighth-grade reading. As in previous administrations, California students performed poorly in comparison to their counterparts in other states.

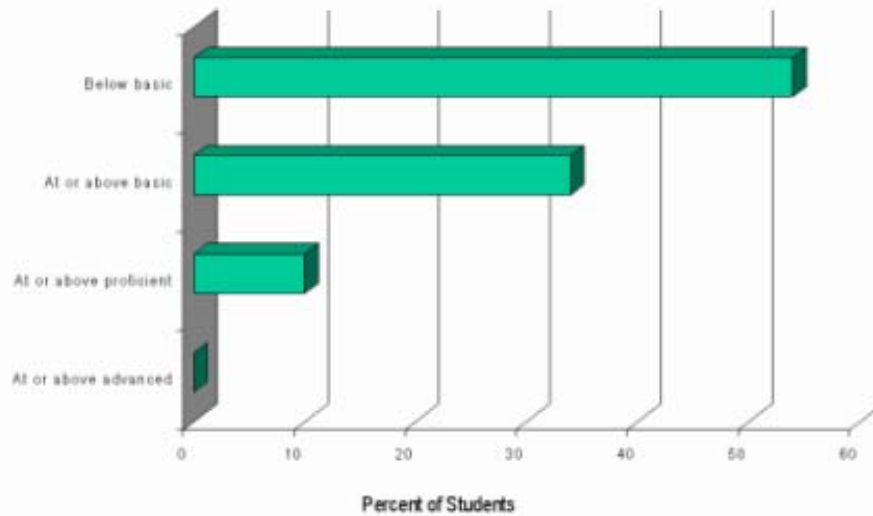
On the 1996 math exam, the average math score of California public-school fourth-graders was 209, a one-point improvement over 1992, which tied the state with Louisiana for next to last. Only Mississippi had a lower score. The national average score was 222. The news was only somewhat better for California's eighth-grade math test-takers in 1996. California's average eighth-grade score of 263, a two-point improvement over 1992, tied with Tennessee and beat out eight other states. The national average score was 271.

It is interesting to note that California's private-school fourth- and eighth-graders did much better on the NAEP math exam, achieving an average score of 236, versus the public-school average of 209. Private-school eighth-graders scored 284, versus the public-school average of 263. The vastness of the gap between the state's private- and public-school scores can be underscored by the fact that the average score of California's private-school fourth-graders significantly exceeded Maine, Minnesota, and Connecticut's top-ranked public-school scores of 232. The average score of California's private-school eighth-graders tied the top-ranked public-school scores of Maine, North Dakota, Iowa, and Minnesota.

Although there are certainly demographic differences between the private- and public-school student populations, these huge variations in scores cannot be explained by such differences alone. Studies of the Milwaukee and Cleveland voucher programs, conducted by Harvard University's Paul Peterson, show greater student achievement among low-income, mostly minority, students in private schools and are worthy of note in this regard.¹⁴

When California's public-school NAEP math scores are grouped according to NAEP's performance levels, the results are also dismal. Among California's public-school fourth-graders in 1996, only one percent scored at the "advanced" level, only 10 percent scored at the "proficient" level, and 34 percent scored at the "basic" level. A full 54 percent of the state's fourth-graders scored "below basic." Among California eighth-graders in 1996, three percent scored at the "advanced" level, 17 percent scored at the "proficient" level, 31 percent scored at the "basic" level, and 49 percent scored "below basic." These 1996 distributions were virtually identical to the 1992 distributions.

Figure 4
1996 NAEP 4th-Grade Math Achievement Levels for California



Source: National Assessment of Educational Progress

Although California's math scores have been low, the state's reading scores have been even worse. On the 1992 NAEP fourth-grade reading exam, California's average score of 202 surpassed only Mississippi's average score of 199. In 1994, California's public-school fourth-graders tied Louisiana's fourth-graders for dead last, with an average score of 199. In 1998, California's average public-school fourth-grade reading score inched back to 202, but the state still ranked next to last, edging out only Hawaii. The 1998 national average for public-school fourth-graders was 215.

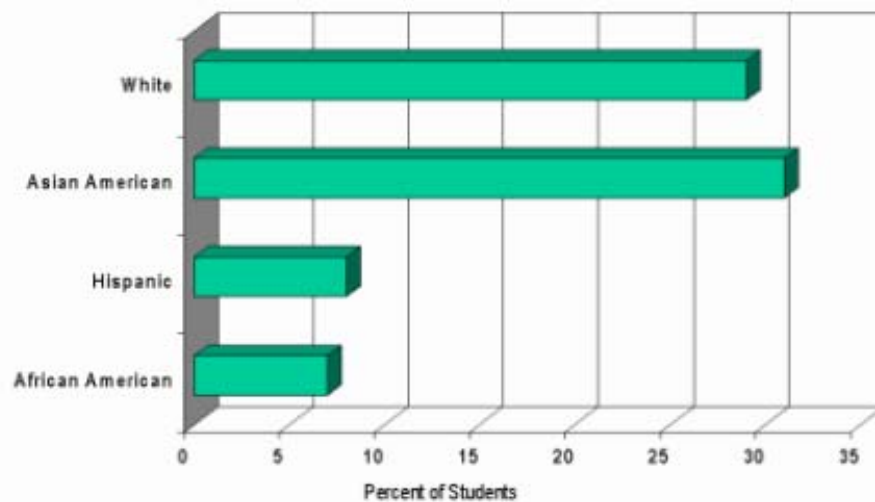
The eighth-grade NAEP reading exam was administered for the first time in 1998. California and Florida tied for the third-from-the bottom ranking, with both states scoring a public-school average score of 253. Only eighth-graders in Hawaii and Mississippi fared worse. The national average was 261.

There was some improvement, however, when student scores were categorized in the NAEP performance levels. In 1994, only two percent of California public-school fourth-grade test-takers scored at "advanced" level, while 12 percent scored at "proficient" level. Only 27 percent scored at "basic" level. An appalling 59 percent scored "below basic." In 1998, things improved slightly, with 4 percent of fourth-graders scoring at the "advanced" level, 16 percent scoring at the "proficient" level, 28 percent scoring at the "basic" level, and 52 percent scoring "below basic."

The scores of California's African-American and Hispanic students were even worse. In 1998, only seven percent of African-American fourth graders and eight percent of Hispanic fourth graders scored at or above the "proficient" level. However, 31 percent of Asian-American fourth graders scored at or above "proficient," a higher proportion than the 29 percent of white fourth graders who scored at or above that level. Among eighth graders, 12 percent of African Americans, nine percent of Hispanics, 27 percent of Asian Americans, and 36 percent of white students scored at or above "proficient."

Like the improvement in California's SAT-9 reading scores in the early grades, the improvement in the fourth-grade NAEP reading scores may indicate the positive influence of the back-to-phonics movement in the classroom. However, only 16 percent of California fourth-graders reached the "proficient" level, which the NAGB says all students should reach, and more than half rated "below basic," meaning that they do not even have a partial mastery of reading. These dismal results underline the continuing unsatisfactory situation in most of the state's public-school classrooms.

Figure 6
Percentage of California 4th-Graders Scoring at or Above Proficient
on the 1998 NAEP Reading Exam
(By Ethnicity)



Source: National Assessment of Educational Progress

Scholastic Assessment Test (SAT)

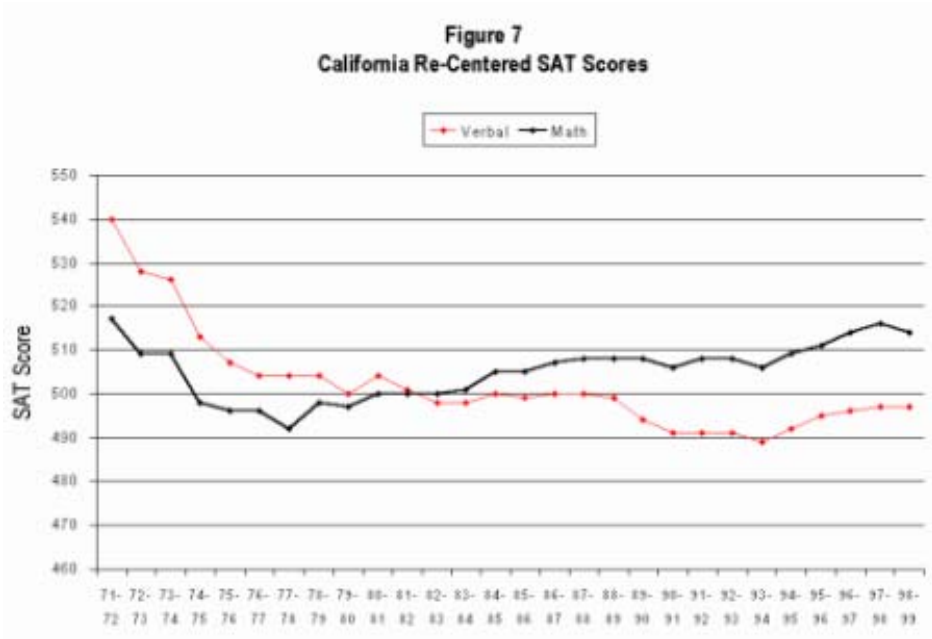
Of all standardized tests, people are most familiar with the Scholastic Assessment Test (SAT). Taken by high-school seniors, the SAT is a multiple-choice-format exam with math and verbal sections of equal weight. Most colleges and universities use the SAT as one tool for determining admission.

In the public's mind, the SAT is often viewed as an indicator of general student performance. The test, however, is at best a crude indicator of such performance. Unlike the SAT-9, which tests all students, or the NAEP, which tests scientifically-representative samples of students, there is no control over who takes the SAT. The percentage of California high-school seniors taking the test has increased from 30 percent in 1971-72 to 49 percent in 1998-99. Since SAT test-taking populations vary from year to year, using SAT results to say something definitive about general student achievement is problematic.

This is not to say that revisionists are correct in their claim that drops in SAT scores have been caused by the increase in the number of test-takers from minority and low-income groups. The real culprit for the decline is not the demographic change in the test-taking population, but the lower-quality public education received by those taking the test.¹⁵

In order to raise the scores of increasingly large numbers of poorly prepared test-takers, the College Board, which administers the SAT, has changed both the difficulty of the test itself and the scoring scale of the exam. In the mid-1990s, the College Board decided to decrease the difficulty of the SAT by increasing the time allotted to take the test, reducing the total number of questions, allowing calculators on the math section, and eliminating the difficult antonym portion of the verbal section.

Moreover, due to the change in the SAT's scoring scale, a process called "recentering," less-than-perfect scores under the original scoring scale now earn perfect marks. Each portion of the SAT, verbal and math, has a perfect score of 800, so that a perfect score overall would be 1600. A verbal score of 730, based on the original scale, now receives a perfect 800 under the "recentered" scoring system.



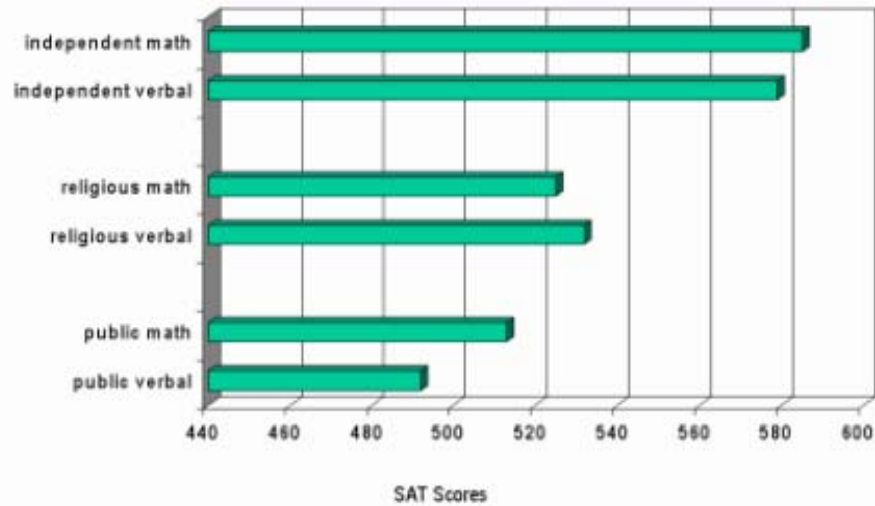
Source: College Board

Thus, California's 1998-99 average verbal score of 497 would be equivalent to approximately a 420 on the original non-recentered scale, while the 1998-99 average math score of 514 would be equivalent to approximately a 480 on the original scoring scale. The 1998-99 "recentered" national average verbal score was 505 and the "recentered" national average math score was 511.

Under the new scale, California's 1998-99 average verbal score of 497 was 43 points below the 1971-72 average verbal score of 540. The 1998-99 average math score of 514, however, was just three points below the 1971-72 average of 517. Remember, though, that the percentage of high-school seniors taking the SAT in 1998-99 was significantly larger than the percentage in 1971-72.

In some large urban school districts, the SAT news was worse. In the Los Angeles Unified School District (LAUSD), the 1998-99 average verbal score was 433, 72 percent below the national average, and the average math score was 447, and 64 percent below the national average.

Figure 8
1998-99 California Public School Vs. Private Independent and Religious School SAT Scores



Source: College Board

It should be noted that the state's average scores combine the scores of both public- and private-school students. When disaggregated, the public-school students score much lower than their private-school counterparts. Scores for private-school students are separated into scores from independent high-schools and scores from religious high-schools. For example, in 1998-99, the average verbal score for California public-school students was 492 versus an average verbal score of 532 for California religious-school students and 579 for independent private-school students. Similarly, on the math section of the SAT, the average score of state public-school students was 513 versus 525 for religious-school students and 585 for independent private-school students. These sizable gaps have persisted for years, although it must be remembered that the test-taking population for each type of school cannot be controlled and will differ from year to year. Results also differ across ethnic groups.

These disparities have led to the charge that the SAT and other standardized tests are biased against minorities. In 1998-99, African-American test-takers had an average verbal score of 434 and an average math score of 422, while Mexican-American test-takers had an average verbal score of 453 and an average math score of 456.

Charges of bias are the basis of recent calls for deemphasizing or even eliminating the SAT as a college admissions tool. A draft guideline issued by the U.S. Department of Education's Office of Civil Rights suggests that colleges and universities rethink the role of SAT scores if their use results in limiting minority admissions. Such arguments attack the SAT not only as an indicator of student performance, but also as a predictor of success in college.

As noted earlier, because testing populations vary from year to year, the SAT is not a good indicator of general student performance. However, as a predictor of a student's future success in college, research shows that standardized tests such as the SAT are valuable.

For example, the College Board gathered data on college grades in individual courses from 45 institutions of higher learning. According to the Board's 1997 study of this data, "A significant finding of this analysis of data by course category is that the correlation is higher for the SAT than for high school record alone in most areas."¹⁶ In other words, the SAT predicted grades in individual college courses better than high-school GPAs. In addition, the study found, "As with earlier validity studies, the combination of SAT scores and high-school record yields the best set of predictors."¹⁷ That is why most colleges and universities use a combination of test scores and GPAs in their admissions process. Indeed, regarding the SAT's effectiveness in predicting college grades, the study notes: "Literally thousands of validity studies have been conducted for institutions for more than a half-century. The evidence is clear: The SAT works and it works very well in many different circumstances."¹⁸

The SAT is an especially good predictor of the college grades of ethnic groups. A data review of a 1993 College Board study of 46,379 students at 55 colleges and universities across the country found that "for most ethnic groups the SAT alone is a better predictor of course grades than are high school grades alone."¹⁹ The review notes that the best predictor of students' college performance is a combination of SAT scores and high-school GPAs, which, again, is exactly what is used by most colleges and universities in their admissions process.²⁰

Further, the review notes that the SAT actually benefits most minorities: "For [African Americans, Hispanics and American Indians],... the SAT tends to predict a slightly higher GPA than the students actually earn."²¹ It is, therefore, highly unlikely that minority students' chances of admission are unfairly hurt by the SAT.²² The data review concluded:

Students admitted to colleges or universities where the curriculum is beyond their level of academic preparation are unlikely to be academically successful, and placing students in such a situation does them a disservice. The best use of information from the SAT, and other academic performance measures, is to judge the likelihood that a student has the academic preparation necessary to succeed at a particular institution. . . . The SAT, in conjunction with high school grades, is the best means available to identify students who are likely to be academically successful. . . . However, eliminating the best tool available for judging the ability to succeed will not ensure equal access to all who are capable of succeeding, and runs the risk of increasing an already troublesome situation in which only 41% of Hispanics who enter college seeking a four-year degree end up with any degree at all.²³

If SAT scores are an effective predictor of college grades, it should come as no surprise that they are also a good predictor of whether a student eventually completes a bachelor's degree. A recent U.S. Department of Education study found that the correlation between test scores and bachelor's degree attainment was higher than the correlation between students' high-school class rank/GPA and bachelor's degree completion.²⁴

It should also be pointed out that getting rid of the SAT would not necessarily guarantee increased minority admissions to California's top universities. This is especially the case with regard to the University of California (UC) system.

The Master Plan for Higher Education in California recommends that the UC system set its freshman eligibility criteria so that the top 12.5 percent of the state's public high school graduates are eligible for admission. A 1997 UC study found that if SAT scores were eliminated as an admissions criteria (the UC

system uses both test scores and high-school grades in its admissions process), then the current grade-point-average (GPA) admissions standard of 3.3 in core high-school courses would have to be raised.²⁵ Keeping the GPA standard at the 3.3 level would result in too many students becoming eligible, thus exceeding the Master Plan's 12.5 percent limit.

Therefore, in the absence of SAT scores, the UC estimated that, in order to conform to the 12.5 percent limit, the minimum GPA for admissions would have to be raised to 3.65.²⁶ Under this scenario, white students, not minority students, are the major beneficiaries. According to the study, "eligibility rates of white graduates increased by 17 percent (from 12.7 to 14.8) and the Hispanic eligibility rate increased by 5 percent (from 3.8 to 4.0)."²⁷ The big losers were African-American students: "In contrast, proportionately fewer African-American graduates within the fully and potentially eligible groups had achieved a 3.65 or greater GPA. The African-American eligibility rate falls from 2.8 percent to 2.3 percent, representing an 18 percent decline."²⁸

Further, the study found that eliminating the UC's ability to use a combination of SAT score and GPA (a combination which UC terms its "index") would have the greatest negative impact on African-American and Hispanic students. The study concluded that: "Had the index criteria not been a component of the eligibility policy, the statewide eligibility rate would have been lower by eight percent, yielding an overall eligibility rate of approximately 10 percent. The greatest impact of the index criteria is on African-American and Hispanic rates—index eligibility contributes 15 percent and 12 percent to these respective subgroup rates."²⁹

It is clear that the opposition to the SAT is motivated more by racial-and-gender politics than by any genuine interest in empirical evidence regarding student achievement. Indeed, David Murray, research director of the Washington, D.C.-based Statistical Assessment Service, states that "every major premise on which [opposition to the SAT] rests is false."³⁰ Murray observes that SAT scores correlate "with those on a whole range of other measures and assessments, including IQ tests, the National Assessment of Educational Progress, and the National Educational Longitudinal Study."³¹

Neither is the SAT somehow uniquely unfair to minorities. Murray points out that, "Far from being idiosyncratic, the scoring patterns of whites, blacks, Hispanics, and Asians on the SAT and GRE are replicated on other tests as well."³² Critics would retort that all standardized tests, not just the SAT, are biased. Murray refutes this charge by noting that, "the National Academy of Sciences concluded in the 1980s that the most commonly used standardized tests display no evidence whatsoever of cultural bias."³³ Murray notes that a University of California study showed that the SAT actually overestimates the first-year grades of African Americans and Hispanics in the UC system.³⁴

Murray also says that while the SAT may slightly under predict the college success of women, for more selective universities, "the SAT predicts the grades of both sexes quite accurately."³⁵

Finally, Murray points out that research shows that SAT scores do not depend heavily on the income of students' families. Students of different races whose families have similar incomes perform very differently on the exam.³⁶

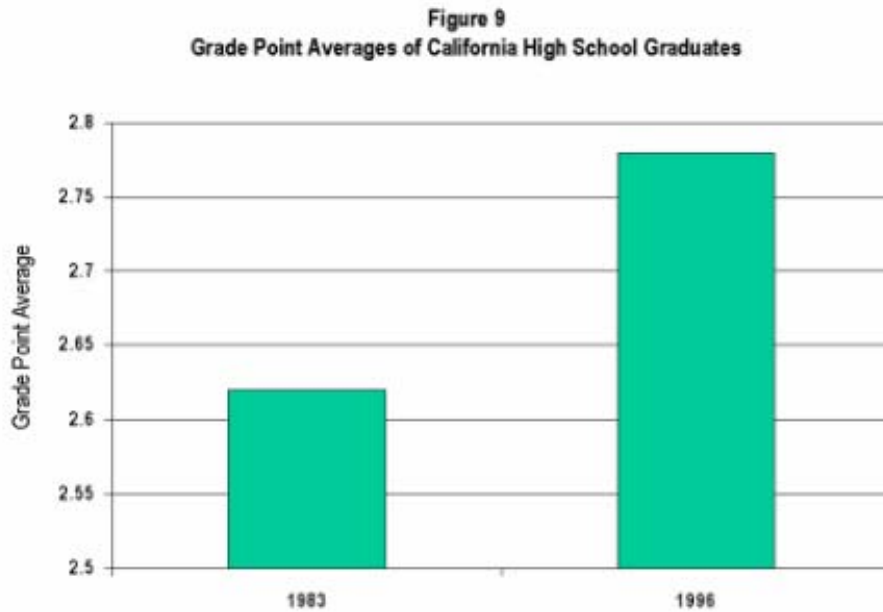
Murray concludes that those who are trying to eliminate the SAT hope "to achieve the ends of affirmative action by other, more politic means."³⁷ SAT critics, says Murray, want "more 'nuanced'

measures of scholastic merit like 'creativity' and 'leadership,' tacitly understood as stand-ins for skin color."³⁸ As Murray points out, however, "there is no reason to think that minority students possess these qualities in greater abundance than do their peers."³⁹ Thus, Murray says, "The attempt to substitute them for test scores will thus only perpetuate the corrupt logic of affirmative action by piling deception upon deception."⁴⁰

In sum, although the SAT is not a good indicator of general student or school performance, it is a legitimate, fair, and useful tool for college admissions officers in evaluating individual students. Given the negative effects of eliminating the SAT, the prudent course of action would be to retain use of the exam.

Grade Point Average (GPA)

While low standardized-test scores in California indicate a general low level of student performance, student GPAs have steadily increased. In 1983, the overall average GPA of high-school graduates in California was 2.62. By 1996, the overall state high-school-graduate GPA had climbed to 2.78.⁴¹



Source: California Postsecondary Education Commission

This GPA increase affected students of all ethnic groups. From 1983 to 1996, average African-American high-school-graduate GPAs increased from 2.26 to 2.41. Hispanic-graduate GPAs increased from 2.42 to 2.55. The GPAs of white graduates increased from 2.69 to 2.90, and Asian-graduate GPAs increased from 2.96 to 3.19.⁴²

According to the California Postsecondary Education Commission, "Increased participation in honors and AP classes probably accounts for some of the increase."⁴³ Advanced Placement (AP) courses are college-level high-school classes that allow students to earn college credits. The reason why increased participation in these classes increases GPAs lies in the fact that students can earn grades with a

higher point score than the normal 4.0 (up to 5.0). It is thought that the opportunity to earn higher than a 4.0 grade gives students the incentive to take the more difficult AP classes.

The other reason why GPAs have increased is grade inflation. While there is no doubt that some students really earn their grades by working hard and taking challenging courses, others receive grades higher than their efforts warrant or receive high grades in less difficult courses. As a University of California report notes, GPAs are subject to "biases resulting from variations in school curriculum and grading practices."⁴⁴ A 1997 College Board report notes that, nationally, the first-year college GPAs of students are much lower than their high-school GPAs. The report concluded that, "high school grades depend as much on the difficulty of the curriculum to which students are exposed, and on the grading standards of the individual high school, as they do on what students actually learn and how prepared they are for college-level classes."⁴⁵

One stunning example of grade inflation occurred at Balboa High School in San Francisco in 1998. In an official memorandum, administrators at the high school told teachers to increase the combined total of all As, Bs, and Cs at the school by five percent over the previous year's total.⁴⁶ In other words, administrators ordered teachers to stop giving out so many low or failing grades. Said one incensed teacher: "I will not give students grades they don't deserve. It implies that teachers at Balboa should lower their standards."⁴⁷ Given such grade manipulation, it is no wonder that college admissions counselors rate SAT scores a more reliable measure than GPAs.⁴⁸

As mentioned in the previous section on the SAT, a U.S. Department of Education (USDOE) study found that when student coursework, test scores, and class rank/GPAs are analyzed, the least reliable predictor of future success in college (as measured by bachelor's degree attainment) is class rank/GPA.⁴⁹ Thus, schemes that seek to increase admission of certain groups of students, usually African Americans and Hispanics, into state universities by focusing solely on high-school class rank and GPAs will likely fail to achieve the desired result of degree completion by group members.

In 1999, the UC Regents approved Governor Davis's proposal to admit students ranked in the top four percent of their high school graduating class, based on GPA. Although not passing final judgment on Davis's scheme, the USDOE study warns that, "The common-sense odds, however, say that unless students in the 'top X percent' by class rank/GPA also have the curriculum that comes from opportunity-to-learn, we may not be doing right by them."⁵⁰

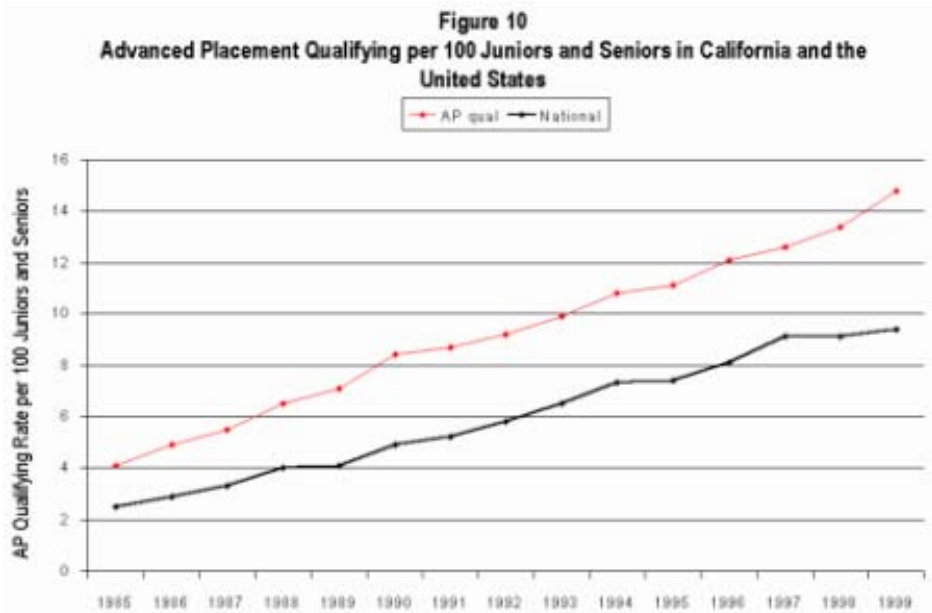
Higher overall GPAs are, therefore, a mirage of higher student achievement. Unless accompanied by improvements in test scores and other performance indicators, higher GPAs, by themselves, fail to inform us as to whether students are learning more in the classroom.

Advanced Placement Test (AP)

The Advanced Placement test is taken by high school seniors who have taken one of 29 AP college-level academic classes. These students may receive college credit for achieving a sufficiently high test score, usually a three or above on a scoring scale of one to five.

The number of twelfth-graders in California taking the exam has more than doubled from 19,633 in 1986 to 44,288 in 1997. This increase in the rate of AP exam-taking greatly exceeded the rate of increase in

K-12 enrollment during this period. As a proportion of all high school graduates, the percentage of AP test-takers has increased from 7.8 percent in 1986 to 14.9 percent in 1997. Increases in AP test-taking are viewed as an encouraging sign because they indicate that more students wish to pursue further academic study in colleges and universities.



Source: California Postsecondary Education Commission

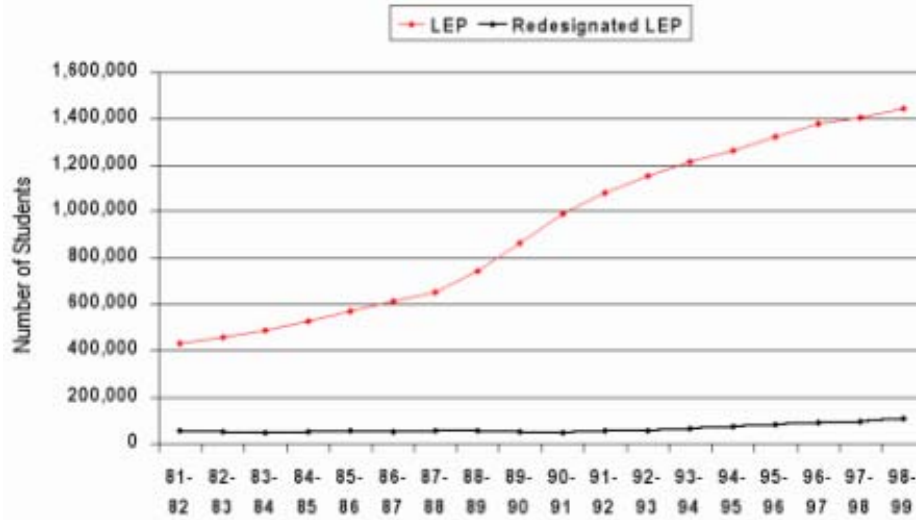
The rate of test-taking has increased among all major ethnic groups in California. As a proportion of each ethnic group's high school graduates, 26.2 percent of Asians took the AP exam in 1997 versus 13.2 percent in 1986; 5.1 percent of African Americans took the AP exam in 1997 versus 2.0 percent in 1986; 8.7 percent of Hispanics took the AP exam in 1997 versus 2.8 percent in 1986; and 11.5 percent of whites took the AP exam in 1997 versus 6.4 percent in 1986.

The results of the AP exams are reported according to a so-called "qualifying rate" per 100 high-school juniors and seniors. Thus, for example, in California the "qualifying rate" in 1984 was 3.4, which meant that 3.4 students per 100 high-school juniors and seniors achieved an AP score of three or better. Over the years, the "qualifying rate" has risen markedly. From the 3.4 rate in 1984, it has risen to 14.8 in 1999, a 335 percent increase.

Limited-English-Proficient (LEP) Students

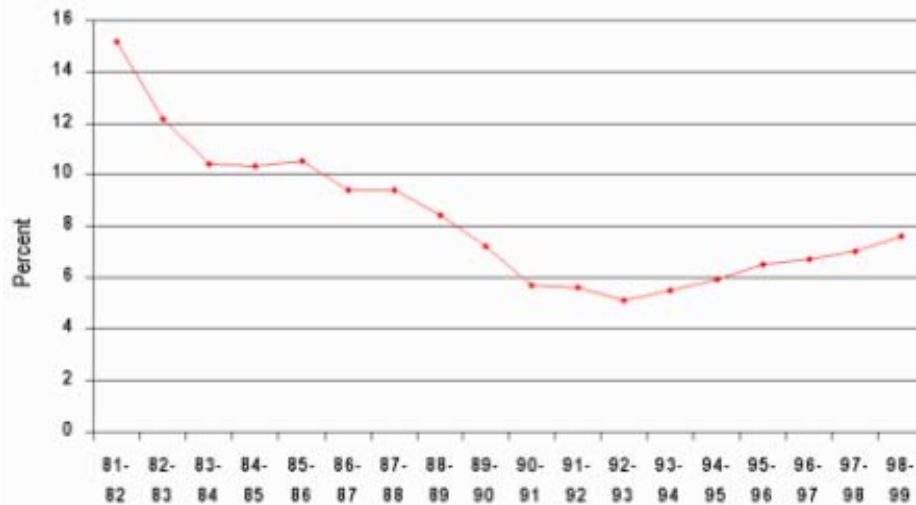
Limited-English-proficient students are those students whose native language is not English and who have yet to acquire an oral or written proficiency in the English language. Since publication of the first edition of the *Index* in 1997, no other area of the educational landscape has changed so much as California's policy towards LEP students.

Figure 11
Number of Limited-English-Proficient (LEP) Students Vs. Number of LEP Students Redesignated as Fluent in English



Source: California Department of Education

Figure 12
Percentage of LEP Students Redesignated as Proficient in English



Source: California Department of Education

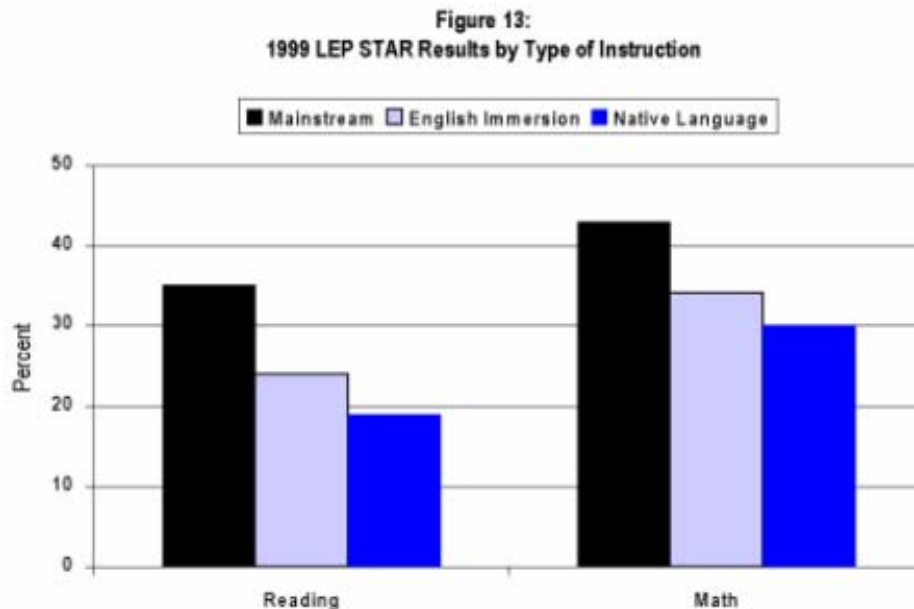
Because of mass immigration, both legal and illegal, the number of LEP students in California has skyrocketed since the 1980s. In 1982, there were a little more than 430,000 LEP students in the state. By 1998-99, the number of LEP students had more than tripled to a staggering 1.44 million.

More worrisome has been the fact that the percentage of LEP students redesignated as having become fluent-English-proficient (FEP) has remained abysmally low during the 1980s and 1990s. In 1981-82, 15.2 percent of the previous year's LEP students were redesignated as FEP. In 1998-99, only 7.6 percent of the previous year's LEP students were redesignated as FEP. In other words, the redesignation rate had been cut in half from 1981-82 to 1998-99. The 1998-99 rate, however, was a slight improvement over the low of 5.1 percent in 1992-93.

Why the long-running inability to impart English skills to LEP students? The principal reason: state and local-district policies that stressed native-language instruction. Under this teaching method, LEP students were taught in their native language for long periods of time (three to seven years). English instruction was limited so that English language learning took five to 10 years. This drawn out process resulted in many LEP students never becoming fully fluent in English.

Confirming the California experience, recent national research has shown that LEP students receiving native-language instruction had lower English fluency acquisition, higher dropout rates, and lower reading scores than LEP students whose instruction was mainly in English.⁵¹

Frustrated by the obvious failure of native-language instruction, California voters overwhelmingly passed Proposition 227 in 1998. Co-authored by businessman Ron Unz and southern California teacher Gloria Matta Tuchman, Prop. 227 barred the use of native-language instruction in most classrooms in favor of sheltered English immersion. Unlike the anti-227 propaganda that attempted to portray English immersion as nothing more than "sink or swim," immersion instruction is based on a solid curriculum and teaching methodology.



Source: California Department of Education

Key characteristics of immersion instruction include: 1) LEP students receive a daily comprehensive program of English language development which focuses on all aspects of the English language, 2) all

immersion students participate as fully as possible in core academic courses through a modified instructional technique called "Specially Designed Academic Instruction in English," 3) all immersion students spend up to 75 minutes daily engaging in varied learning activities with non-LEP students so that LEP students can use their developing English skills with native-English speakers, and 4) districts draw up daily time schedules for teachers to assist in the planning of daily tasks for immersion students.⁵²

The early post-Prop. 227 evidence shows that English immersion is working. According to an analysis conducted by the *San Jose Mercury News*, as the requirements of Prop. 227 are implemented in the classroom, "students are rapidly acquiring at least a basic understanding of English."⁵³

The *Mercury News* analysis examined enrollment and STAR test data for LEP students for the 1998-99 school year—the first year under Prop. 227 - and the preceding year. The study divided LEP students into those with enough English fluency to be enrolled in mainstream classrooms where they received no special assistance (29 percent), those enrolled in English-immersion classrooms (49 percent), and those using waivers to remain in native-language-instruction programs (12 percent). In the second, third, and fourth grades, based on STAR test data, LEP students in mainstream or English-immersion classes made more reading and math progress than those students who continued to receive native-language instruction.⁵⁴

For example, in 1999 LEP second-graders in mainstream classrooms scored at the 35th percentile on the STAR reading test, and those in English-immersion classes scored at the 24th percentile, while those in native-language-instruction classrooms scored at the 19th percentile.⁵⁵ On the second-grade STAR math test, mainstreamed LEP students scored at the 43rd percentile, English-immersion students scored at the 34th percentile, and native-language-instruction students scored at the 30th percentile.⁵⁶

Although fifth-grade students receiving native-language instruction performed slightly better than those receiving English-immersion instruction, *Mercury News* education columnist Joanne Jacobs notes that "when '99 scores are compared to '98, fifth-grade scores improved more in elementary schools that switched to English immersion than in bilingual schools."⁵⁷ "Except for fourth-grade math," observes Jacobs, "there was more progress in every grade in English immersion schools."⁵⁸

For a variety of reasons, it is still too early to say anything definitive about the effect of Prop. 227 on the achievement of LEP students. One problem has been that although the law is clear that English immersion is supposed to be the teaching methodology, many school districts, especially large urban districts, have dragged their heels in implementing 227.

After 227's passage, then-San Francisco School Superintendent Bill Rojas publicly stated that he would go to jail before implementing the new law.⁵⁹ The bilingual-education director in Contra Costa County declared: "If a child is very limited in English proficiency, we will offer [native] language instruction. It's essentially the same as last year."⁶⁰ Stephen Moore, director of fiscal-policy studies at the Cato Institute and a visiting fellow at Stanford's Hoover Institution, found widespread violation of 227:

The Los Angeles Unified School District, for example, has established two options for immigrant children. Model A is conventional English immersion with 90 percent of instruction in English. Model B is called "English immersion," but in reality it is the bilingual-education status quo ante, with up to half of

all instruction in native languages. Many school districts are channeling all former bilingual-ed kids and new immigrant arrivals into Model B. Other districts are busy issuing waivers to students in order to fill the old-style bilingual classes.⁶¹

The courts, however, are acting to put an end to this blatant defiance of the the law. In the case of *McLaughlin v. State Board of Education*, the California First District Court of Appeals in September 1999 upheld the integrity of Prop. 227 saying, "We conclude that the plain meaning of Proposition 227 was to guarantee that LEP students would receive educational instruction in the English language, and that English immersion programs would be provided to facilitate their transition into English-only classes."⁶² Specifically, the appellate court struck down efforts by local school districts to seek general waivers from the state Board of Education which would have exempted the districts from the requirements of 227.⁶³ Any attempt to get a waiver from 227's provisions, said the court, would have to be initiated by individual parents, not by school-district officials:

Proposition 227 also vests parents of LEP students with the sole right to seek a waiver from the [measure's] provision requiring English-only instruction for their own children. The [measure's] language permits no other means by which the program requirements may be waived, and in fact, allows for civil action against school districts, educators, and administrators who fail or refuse to provide English-only instruction. To the extent there is any ambiguity as to the intent of Proposition 227, the legislative history clarifies that the [measure] was designed to wrest from school boards and administrators decision-making authority for selecting between LEP educational options and repose this power exclusively in parents of LEP students.⁶⁴

In December 1999, the California Supreme Court upheld the appellate court's decision. Also, in September 1999, the U.S. District Court for the Central District of California issued a decision in the case of *California Teachers Association v. Davis* that upheld the constitutionality of the Prop. 227 provision which holds teachers, administrators, and school board members liable for willfully and repeatedly refusing to implement English immersion. The court observed that teachers do not have a constitutional right to determine what curriculum will be taught in the classroom, especially if the teacher's curriculum contravenes duly adopted curriculum policies, such as those required by Prop. 227.⁶⁵ The state, says the court, "can dictate to teachers that they teach in English."⁶⁶

Given the recalcitrance of many school districts to implement Prop. 227, many LEP students have yet to feel the effects, positive or negative, of English-immersion programs. Only when Prop. 227 is evenly implemented across the state can the full effect of English immersion be observed, researched, and documented.

Not all school districts, however, have been so hesitant in switching over to English immersion. A June 1999 report by the Institute for Research in English Acquisition and Development (READ) examined five California school districts which have implemented English-immersion programs. Unlike administrators in other school districts who tried to find loopholes in Prop. 227, the officials in these five districts made strong conscious decisions to aggressively implement 227.

Dr. Marilyn Hildebrandt, assistant superintendent of instruction for the Ceres Unified School District in Central California, stated: "We kept preaching the more English the better. If we had not made a major statement about language use, it would have dissipated the intent of immersion quickly."⁶⁷ Thus, Ceres

Unified, which has a large LEP population of Hispanic, Hmong, Lao, and Arab students, adopted a policy which required that English be used at all times during regular classroom instruction.⁶⁸

The READ report also revealed a realization among officials in these five districts that native language instruction was not working. For example, James Brooks, superintendent of the Riverdale Unified School District located near Fresno, observed that: "It came down to the progress—or lack of progress—that our LEP students were making in our previous bilingual classrooms. What we were doing was very inadequate."⁶⁹ Dr. Neil McKinnon, assistant superintendent of the Orange Unified School District in Southern California, who repeatedly clashed with the California Department of Education over the Department's bias in favor of native language instruction, found that: "Immersion turned out to be the most coherent program we ever offered LEP students."

Overhauling California's teacher training curriculum is crucial if Prop. 227 is ever to be fully implemented. According to the READ report:

A review of [the California teacher training] curriculum shows scant attention dedicated to informing California educators about immersion education, its history, where it is used, and its results. Instead, teachers are fed a steady diet of information that basically endorses native language instruction. Indeed, many non-bilingual educators emerged from these training programs probably more knowledgeable about bilingual programs (one in which they could not teach) than about English immersion, a program design at least more consistent with most districts' and schools' resources (English-speaking teachers and English-language materials).⁷⁰

Finally, a well-designed evaluation and assessment plan must be adopted to monitor the progress of LEP students. All five districts adopted Orange Unified's evaluation program that closely monitors and records the English-fluency development of immersion students.⁷¹ This program will allow the districts to compare the progress of their LEP students over time and with other districts. Also, since the state's SAT-9 test scores are now broken down by LEP and non-LEP scores, it will be easier to make judgments about immersion's effect on the performance of LEP students.

The voters, courts, and research have spoken loudly that native-language instruction is dead in California. English immersion is now the law and its full implementation should be a key goal for all school districts in the state.

Dropout Rate

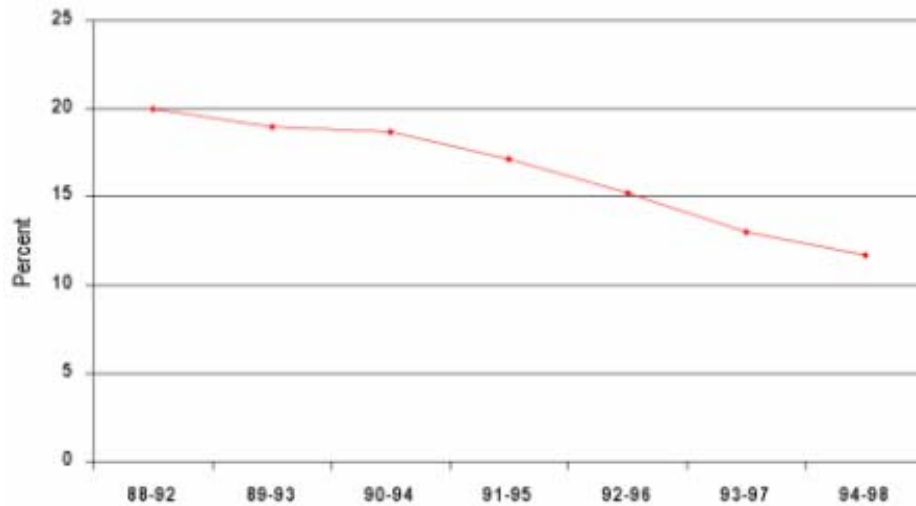
In the 1997 edition of the *Index*, PRI pointed out that the official dropout figures provided by the California Department of Education (CDE) were almost surely understated. The CDE issued two types of dropout rates: the "single-year" dropout rate and the "derived" dropout rate. The "single-year" dropout rate compared the enrollment and dropout figures for the high-school grades in the same school year.⁷² The "derived" rate calculated the dropout rate that a graduating class has experienced since grade nine.⁷³ These rate calculations seriously undercounted the number of dropouts, especially over a four-year period.

For instance, students who dropped out of school during the summer and failed to enroll in the fall were not counted. Individual schools could also eliminate a dropout from their books by transferring a

student's records to an independent study program without verifying what had actually happened. Schools could also claim that a student had moved out of state without any supporting evidence. For its part, the state does not have the resources to verify the self-audited reports of schools and school districts.⁷⁴

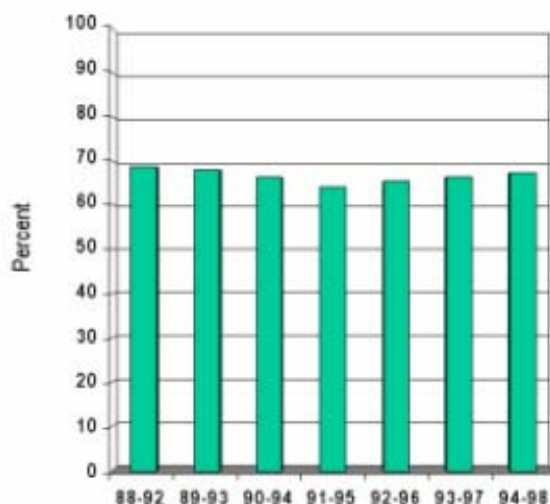
Because these dropouts were missed in the CDE's official dropout calculations, the official dropout statistics were artificially low. For example, the CDE's 1998 "single-year" dropout rate was just 2.9 percent and CDE's 1998 four-year "derived" rate was 11.7 percent (a decline from 20 percent in 1992).

Figure 14
California Drop-Out Rate



Source: California Department of Education

Figure 15
California High School Graduation Rate



Source: California Department of Education

In 1998, buoyed by these seemingly positive trends, State Superintendent of Public Instruction Delaine Eastin declared, "In the last decade, we can be proud of the gains we have made cutting the percentage of high school dropouts by more than half."⁷⁵ Yet, such optimism did not square with observed reality.

As the 1997 *Index* pointed out, if one used a "cohort" method of calculating dropouts, such as the graduation rate, then the dropout rate would be three times the "derived" rate. The graduation rate takes the number of students enrolled in the ninth grade and compares that number with the number of students who graduate from high school four years later.⁷⁶ In 1998, the graduation rate in California was 67.2 percent. In other words, nearly 33 percent of ninth-graders who were enrolled four years previously did not graduate. California's graduation rate has held steady at this low level for approximately two decades.

It is true that the method for calculating the graduation rate is not perfect. Some students do leave the state, enroll in a private school, or complete graduation requirements in adult school. However, an analysis of Louisiana's dropout rate by Richard Fossey and Jim Garvin of Louisiana State University found that such deficiencies in cohort dropout rates are relatively minor. Fossey and Garvin concluded that cohort rates are more accurate measures of true dropout rates.⁷⁷

Forced by education activists and the press to justify the discrepancy between the CDE dropout-rate figures and the graduation rate, State Superintendent Eastin reversed her previous optimistic tone and questioned the validity of lower state and local-district dropout statistics saying she was "reluctant to emphasize this positive trend because of the difficulties associated with collecting quality dropout data."⁷⁸

Eastin acknowledged that even allowing for the minor deficiencies in the graduation rate calculations, there were still thousands of students who were not graduating and who were not counted as dropouts.⁷⁹ According to Eastin, although calculating graduation rates can also be problematic, those numbers are still better indicators of the real dropout rate.⁸⁰ Eastin also accepted the primary importance of the graduation rate by saying, "the focus needs to be on improving graduation and completion rates."⁸¹

The absurdity of the "derived" rate is underscored when looking at individual district rates. The mammoth Los Angeles Unified School District (LAUSD), for example, posted an 18.6 percent "derived" dropout rate in 1998, down from 26.2 percent in 1997 and 32.8 percent in 1996.⁸² Even CDE officials, however, warned that such numbers are not reliable. In contrast, LAUSD's 1998 graduation rate was only 53 percent.⁸³

One particular criticism of the graduation rate calculation merits added attention. A partial explanation given by school officials for the discrepancy between the graduation rate and the dropout rate is that some students eventually earn a high-school equivalent diploma, although they earn it past the normal four-year high-school diploma-granting period.⁸⁴ Such students, it is argued, should not be considered dropouts. Nationally, about 17 percent of all new high-school degrees were awarded through an equivalency exam such as the General Equivalency Diploma (GED) exam. Research, however, shows that high-school equivalents like the GED are hardly equivalent to a normal high-school diploma.

In their groundbreaking 1993 study, University of Chicago Professors Stephen Cameron and James Heckman came to some very sobering conclusions regarding the worth of high-school equivalent degrees such as the GED. Cameron and Heckman found that GED-certified persons are much less likely than high-school graduates to attend four-year colleges or undertake any postsecondary education.⁸⁵ Even those GED-certified persons who do go on to higher education are less likely than high school graduates to finish the programs they begin.⁸⁶

Perhaps most serious was the finding that GED-certified persons were indistinguishable from high school dropouts in their performance in the labor market. According to Cameron and Heckman, both dropouts and exam-certified persons had comparably poor wages, earnings, hours of work, unemployment experiences, and job tenure.⁸⁷ They also found evidence that employers discounted the worth of GEDs.⁸⁸

Of special interest to today's discussion of dropout rates versus graduation rates, Cameron and Heckman found that what mattered most was the number of years of actual schooling completed by individuals. Dropouts, GED-certified persons, and high school graduates who had the same number of years of schooling actually had roughly similar earnings. High-school graduates earn statistically higher wages, however, when compared to GED-recipients or dropouts who have fewer years of schooling.⁸⁹ As Cameron and Heckman point out, "There is no cheap substitute for classroom instruction."⁹⁰

A 1998 U.S. Department of Education study that examined 50 years of research data on the value of the GED came to many of the same conclusions as Professors Cameron and Heckman. According to the federal study, in 1995, GED test takers had completed a mean of 9.9 years of school. High school graduates had completed 2.1 more years of schooling which translated into 861 more hours of core curriculum courses.⁹¹ This disparity has real-world consequences. Once in the labor market, GED-

recipients earned less, worked less, and had higher job turnover than high school graduates.⁹² As in the Cameron and Heckman study, the federal study found that all differences in earnings between dropouts, GED recipients, and high school graduates could be explained by differences in years of secondary schooling completed.⁹³ In other words, the data once again proved that there is no substitute for classroom instruction time.

Based on these and other findings, the federal study recommended that "the common practice of counting GEDs as high school graduates in educational statistics should be reconsidered."⁹⁴

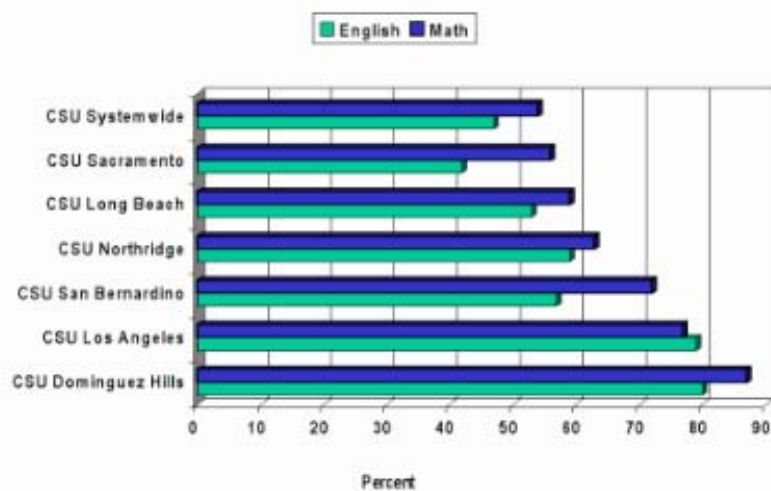
The graduation rate, therefore, has explanatory value because it informs us as to the number of students not receiving that crucial classroom instruction time. Those not receiving it, whether they be dropouts who never earn a high school degree equivalent or those who do, are not being given all the skills they need to function successfully in today's economy. In order to do something about this problem, policymakers must be honest about the scope of the problem. That means having an accurate methodology to calculate the dropout rate.

In response to the complaints, the State Board of Education has ordered the CDE to revise its dropout rate methodology. Eventually, there are plans to track all students so that it will be possible to get a very accurate dropout-rate figure.

Remedial Instruction

One of the most embarrassing education statistics in California is the number of freshmen entering the California State University (CSU) system who, because of poor preparation by the public K-12 system, are forced to take remedial classes in math and English. These high remedial rates are especially frightening since students admitted to the CSU system are in the top one-third of their graduating classes.

Figure 16
Percentage of CSU Entering Freshman Needing Remedial Instruction (1996)



Source: California State University

System-wide in 1998, 54 percent of CSU incoming freshmen had to enroll in remedial math courses—nearly double the 28 percent that had to enroll in remedial math in 1989—while 47 percent had to enroll in remedial English, down slightly from the 49 percent in 1994, but still up from the 42 percent in 1989.

The remedial rates were much worse at certain individual CSU campuses. In 1998 at CSU Los Angeles, 77 percent of entering freshmen needed remedial math and 79 percent needed remedial English. At CSU Dominguez Hills, an astounding 87 percent of entering freshmen needed remedial math, while 80 percent needed remedial English.

When broken down by ethnicity, the CSU remedial numbers mirror the numbers in the NAEP tests. In 1998, 80 percent of African-American CSU entering freshmen, 73 percent of Mexican Americans, 47 percent of whites, and 43 percent of Asian Americans had to take remedial math. For those needing remedial English, the numbers were: 66 percent of African Americans, 65 percent of Mexican Americans, 65 percent of Asian Americans, and 28 percent of whites.

CSU officials, understandably, blame the state's K-12 public school system for this tidal wave of academically unprepared students. Fresno State University admissions official Vivian Franco says that the bleak numbers at her campus, where 67 percent of entering freshmen need remedial math and 53 percent need remedial English, reflect problems in the K-12 system, "even at some of our good schools."⁹⁵

The effect on the CSU system of so many students requiring remedial assistance has been debilitating. According to J. Michael Ortiz, provost and vice president for academic affairs at Fresno State: "[Remedial students] are not at the same competitive level [as other students]. They either dragged the class down, or bright students tried to pull them up by the bootstraps. They placed a huge strain on the faculty."⁹⁶ It is unsurprising that in a national study, only 39 percent of college students assigned to remedial courses completed their bachelor's degree, versus 69 percent of those who were not subject to remediation requirements.⁹⁷

The CSU's policy, adopted in 1996, is to reduce its share of freshmen needing remedial instruction to 10 percent by 2007. In the fall of 1998, as part of that effort, and to address the problems cited by Mr. Ortiz of Fresno State, CSU Chancellor Charles Reed announced a new policy that required incoming freshmen to complete remedial classes during their first year or leave school and make up work elsewhere before reapplying. Previously, CSU students could take remedial classes as late as their junior or senior years, simultaneously with advanced upper-division classes in their majors. At the end of the 1998-99 school year, 1,200 students system-wide failed to complete their remedial coursework in the required time period and were disenrolled.

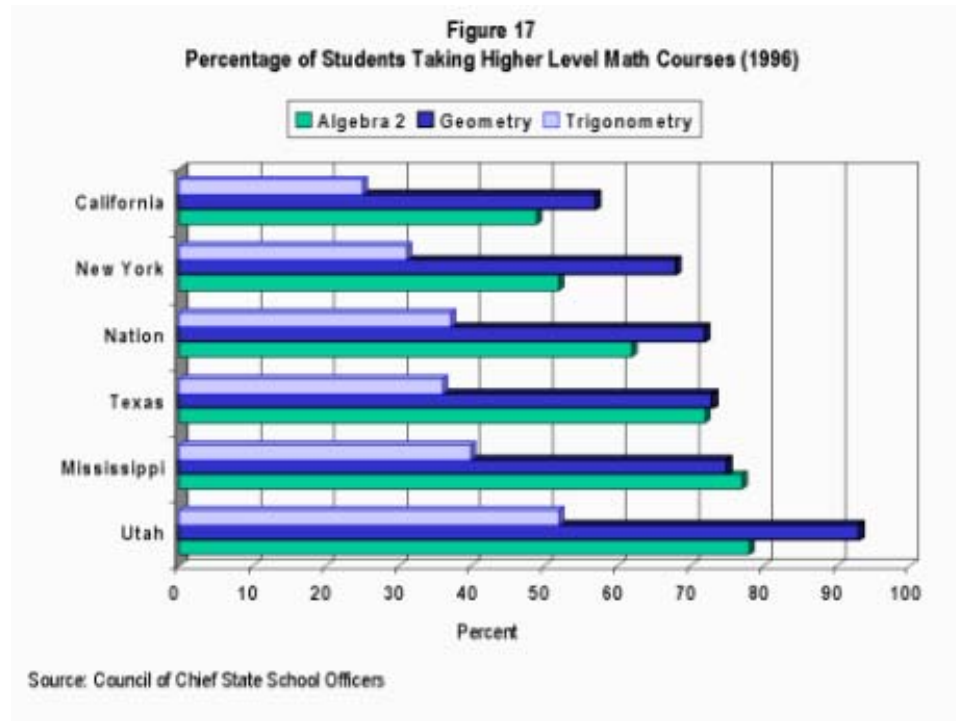
When employers ask why employees with college degrees seem so ill-equipped for the workplace, they need look no further for the answer than the remedial instruction rates at supposedly high-quality universities. Indeed, one must question the value of a current college degree in the face of such statistics. The public K-12 school system has contributed significantly to the degradation and cheapening of the college degree. It is, therefore, incumbent on the K-12 system to right itself and, in the process, restore the prestige of the college degree.

Course Difficulty

It should come as no surprise that so many entering college students need remedial math instruction when one considers that California students take fewer difficult math and science classes than students in other states. Indeed, while many students are not being asked to take challenging academic classes, school officials are increasingly requiring trendy politically-correct coursework. For example, in 1999-2000, the Los Angeles Unified School District (LAUSD) requires students to take a 20-week racial-sensitivity class. District officials are forcing this requirement on students even though LAUSD reported only three racially-motivated crimes in 1998.⁹⁸

Math

Higher level math courses are generally divided into five levels: 1) Algebra/Integrated Math I (Level One), 2) Geometry/Integrated Math II (Level Two), 3) Algebra II/ Integrated Math III (Level Three), 4) Trigonometry/Pre-Calculus (Level Four), and 5) Calculus/AP Calculus (Level Five).

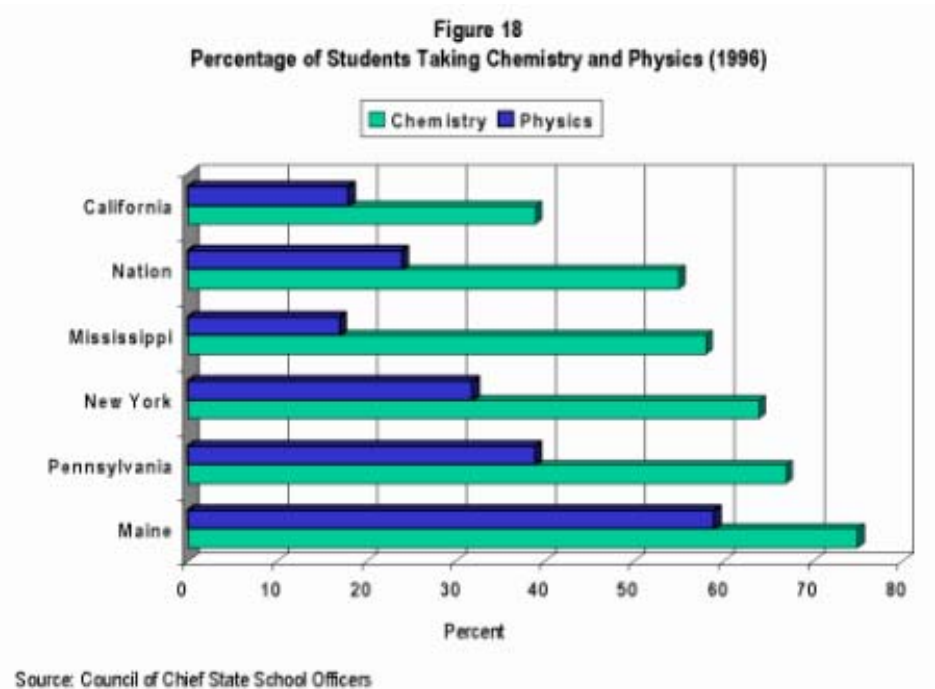


According to the latest report of the Council of Chief State School Officers (CCSSO), for 1996 high-school graduates, California ranked at the national average in percentage of students who had taken Level One courses, but below the national average in the other four levels.⁹⁹ Indeed, in several of the levels California ranked near the bottom. For instance, of the 32 states that reported statistics, just 49 percent of 1996 California high-school graduates had taken Algebra II/Integrated Math III. Only Delaware and Hawaii were ranked lower.¹⁰⁰ Also, just 57 percent of 1996 California graduates had taken Geometry/Integrated Math II. Only Alabama, New Mexico, and Hawaii were ranked lower.¹⁰¹ And just 25 percent of 1996 California graduates had taken trigonometry/pre-calculus. Only four other states were ranked lower.¹⁰²

In fact, from 1990 to 1996, California beat out only Delaware and Hawaii in the percentage of high-school students who had taken Algebra II/Integrated Math III.¹⁰³ This is a critical failing because finishing a math course beyond Algebra II more than doubles the odds that a student who enters postsecondary education will complete a bachelor's degree.¹⁰⁴

Science

The three science courses used as benchmarks by experts are First-Year Chemistry, First-Year Physics, and First-Year Biology. As in math, California ranks at or near the bottom in terms of high school graduates who have taken these challenging science courses.



For instance, of the 33 states reporting statistics, California ranked dead last in the percentage of 1996 high-school graduates who had taken First-Year Chemistry (only 39 percent of California's 1996 graduates had completed the course).¹⁰⁵ California was also last in the percentage of 1996 graduates who had taken First-Year Biology. A declining 79 percent of California 1996 graduates had completed the course, a five percent decrease from 1994.¹⁰⁶ Also, just 18 percent of 1996 California graduates had taken First-Year Physics. Only six states were ranked lower.¹⁰⁷

If one looks at the percentage of high-school students in 1996 who took any science course, regardless of difficulty, one finds that only 65 percent of California high-school students were taking a science course. The national average was 82 percent. That percentage qualified California for a last-place ranking.¹⁰⁸

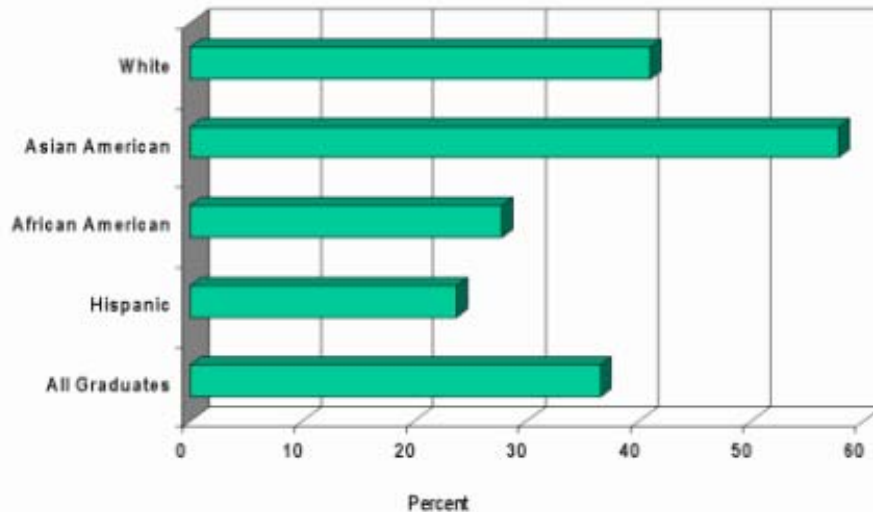
Core Courses

Another indicator of the difficulty level of students' coursework is the percentage of students taking the "A-F core courses." These core courses, required by both UC and CSU in order to be eligible for admission, include specified numbers of classes in history, English, mathematics, laboratory science, foreign language, and advanced course/elective. The CSU also adds an extra requirement of a class in visual/performing arts.

In 1997-98, just 36.6 percent of California high-school graduates had completed this university-preparatory curriculum. Although this was an increase over the 31.3 percent of California graduates completing the curriculum in 1989-90, the bottom line is that 63.4 percent of California graduates in 1997-98 had not completed this core curriculum.¹⁰⁹ Although much attention has been focused on the impact standardized tests, such as the SAT, have on the admissions eligibility of certain groups of students, a University of California report points out that low test scores are rarely the only reason for a student's ineligibility for the UC system. In 1996, about three percent of ineligible students were deemed so because of an inadequate combination of grades and test scores. In contrast, nearly 80 percent of 1996 California high-school graduates were UC ineligible because they failed to complete the A-F curriculum, and approximately 63 percent had curricular patterns totally unrelated to UC preparation.¹¹⁰

Broken down by ethnicity, 23.8 percent of California's Hispanic graduates, 27.8 percent of African-American graduates, 41.0 percent of white graduates, and 57.8 percent of Asian-American graduates in 1997-98 had completed the A-F curriculum. These were all increases over the percentages in 1990.¹¹¹

Figure 19
Percentage of California High School Graduates Who Have Completed the A-F
College Core Courses (1997-98)



Source: California Postsecondary Education Commission

To be fair, not all high schools, especially those in low-income areas, offer the complete A-F university preparatory curriculum. That such a situation exists, however, is but another failing of California's public school system.

Standards

One of the most important education developments to occur in California since PRI published the first edition of this *Index* has been the adoption by the state Board of Education of rigorous state academic content standards in math, science, history, and English language arts. A comprehensive analysis of California's new standards and the general standards/assessment process is contained in the 1999 PRI study *Developing and Implementing Academic Standards*.

It is widely accepted that good academic content standards have nine key characteristics. Standards must be: 1) rigorous, 2) intelligible, 3) measurable, 4) specific, 5) comprehensive, 6) academic, 7) balanced, 8) manageable, and 9) cumulative. California standards score high in all of these categories.

For example, California's math standards are very rigorous. They give detailed information as to what students should know by the time they complete a grade. In contrast to "new, new math" teaching techniques which deemphasize computational skills, California's math standards require students to demonstrate specific computational knowledge. Fourth graders, for instance, must be able to count into the millions, know decimal places to the hundredths, write fractions and equate them to decimal notations, use negative numbers, compute sums and differences of numbers with decimals, and do complex multiplication and division. All knowledge requirements are built upon equally complete and detailed standards from previous grades. The standards are precisely worded and challenge students to understand and to perform at a world-class level. Indeed, California's math standards are similar to Japan's, and in some cases even more demanding.

California's English and reading standards are also excellent. For example, the state's first-grade reading standards, unlike fuzzy standards in other states such as New Jersey, cover critical areas such as phonics, vocabulary, and concept development. The reading standards are part of a comprehensive set of English standards that include similarly detailed standards on reading comprehension and literary response and analysis. Further, subsequent standards in higher grades build on the knowledge students are asked to acquire in earlier grades. The result is a set of standards that is complete, covering the subject in admirable depth and breadth.

California's tough new academic content standards are helping many teachers to focus their teaching efforts. For example, at 118th Street Elementary School in South Central Los Angeles, whose students scored the lowest among all schools in the Los Angeles Unified School District on the 1997-98 SAT-9 test, the new state standards have been an important curriculum aid to the school's faculty. According to the *Los Angeles Times*, "The school's 38 teachers, many of them new, say the state's academic standards, posted in every classroom, have helped them design consistent, focused lessons."¹⁰⁹

In addition, a recent report issued by the U.S. Department of Education (USDOE) indicates that there is an important link between a tough curriculum and student achievement. In his landmark study, *Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment*, USDOE senior research analyst Clifford Adelman studied a national cohort sample of students over an 11-year period, examining their high school and college transcripts and their test scores. He found that the intensity, quality, and difficulty of a student's high school curriculum is the most important factor in determining whether that student will eventually earn a college bachelor's degree. According to Mr. Adelman, "high school curriculum measures hold a stronger relationship to eventual bachelor's degree

completion than the other major secondary school performance measures."¹¹³ As mentioned previously in this paper's section on math course difficulty, Mr. Adelman discovered that taking higher level math classes beyond Algebra II (i.e., trigonometry, pre-calculus, or calculus) "more than doubles the odds that a student who enters postsecondary education will complete a bachelor's degree."¹¹⁴

What is especially interesting about Mr. Adelman's findings is the fact that when students were exposed to an intense, high-quality academic curriculum, factors such as race and socioeconomic status (SES) became relatively unimportant. For example, students from the lowest two SES quintiles (i.e., the lowest 40 percent in SES) who were also in the top academic curriculum quintile (i.e., the top 20 percent in the intensiveness and quality of high school academic curriculum) earned bachelor's degrees at a higher rate than a majority of students from the top SES quintile.¹¹⁵

Similarly, Mr. Adelman found that, "No matter how many times (and in different formulations) we try to introduce race as a variable, it does not meet the most generous threshold criteria for statistical significance."¹¹⁶ Indeed, he notes that, "The impact of a high school curriculum of high academic intensity and quality on degree completion is far more pronounced and positive for African-American and Hispanic students than any other pre-college indicator of academic resources."¹¹⁷

Whereas only 45.1 percent of all African-American students who enter a four-year college eventually obtain their bachelor's degree, 72.6 percent of African-American students who had a high-quality math curriculum completed their degree. Also, whereas 60.8 percent of all Hispanic students who enter four-year colleges earn their bachelor's degree, 79.3 percent of Hispanics who had a high-quality math curriculum completed their degree. Although having a high-quality math curriculum helped whites and Asians, the magnitude of assistance was not as dramatic as among African Americans and Hispanics.

Adelman's findings powerfully counter the criticism that California's new high-quality academic content standards are inappropriate for low-income minority students. California's math standards for the high school grades require all students, including minorities, to master math subjects beyond Algebra II. Challenging students to meet this expectation is exactly what will help ensure their future success in college and in their careers. Lower expectations, on the other hand, merely ensure that students, especially minority students, will fail to reach their full potential.

An important corollary to Adelman's study is that a high-quality high-school curriculum for all California students can only become a reality if students in their K-8 careers receive foundational instruction. Such instruction is necessary if students are to build a knowledge and skill base that allows them to handle a high-quality curriculum once they reach high school. It is, therefore, imperative for schools and school districts throughout California to make implementation of the State Board of Education K-12 academic content standards its top priority.

Teacher Quality

According to University of Rochester Professor Eric Hanushek, one of the nation's top education economists, "Considerable evidence shows that by far the largest differences in the impact of schools on student achievement rates relate to differences in the quality of teachers."¹¹⁸ Good teachers improve the achievement of even the hardest-to-teach students, while bad teachers lower the performance of even the most advantaged students.

Tennessee, for example, has a data system that makes it possible to link teachers to achievement in their classrooms.¹¹⁹ In a study of the effect of teachers of varying quality on low-achieving students in Tennessee, William Sanders, head of the Value-Added Research and Assessment Center at the University of Tennessee, Knoxville, found that high-quality teachers had a huge effect on student performance. Sanders grouped teachers into quintiles based on their effectiveness in producing gains in student learning. On average, the least effective teachers (those in the lowest quintile) produced achievement gains of 14 percentile points among low-achieving students during the school year. Low-achieving students taught by the most effective teachers (those in the highest quintile) produced average gains of 53 percentile points.¹²⁰

Sanders also found that teacher quality had a significant effect on middle- and high-performing students. Middle-level-achieving students gained 10 points with the least effective teachers, while those with the most effective teachers gained more than 30 points.¹²¹ Amongst high-achieving students, there was only a two-point gain for those students who had the least effective teachers, but a 25-point gain for those students with the most effective teachers.¹²²

The cumulative effect of good and bad teachers is startling. When Sanders looked at fifth-grade math scores in Tennessee, he found that students who had three straight years of very effective teachers showed achievement gains nearly three times those of students who had three straight years of very ineffective teachers.¹²³ Sanders observed that students with initially comparable levels of achievement have "vastly different academic outcomes as a result of the sequence of teachers to which they are assigned."¹²⁴

The effect of teacher quality on student achievement has been recorded in other studies. One study found that differences in student achievement with a good teacher versus a bad teacher can be more than one-and-a-half grade levels of achievement within a single school year.¹²⁵ A study of the Dallas school system found that fourth-graders assigned to three highly effective teachers in a row experienced significant achievement growth by the end of the sixth grade, while fourth-graders assigned to three consecutive ineffective teachers saw their achievement fall by the sixth grade.¹²⁶

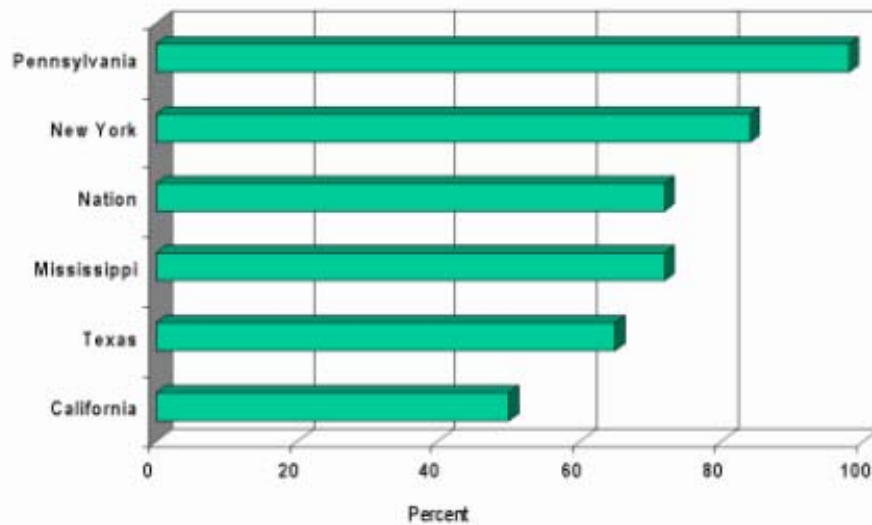
If teacher quality has such an impact on student achievement, the obvious question is what constitutes a high-quality teacher? According to recent research, the key characteristics of high-quality teachers are their verbal and math skills and their content knowledge of the subjects they teach.¹²⁷

For example, a Harvard study found that those teachers in Texas who scored high on the state's basic literacy exam for teachers were more likely to produce significant gains in student achievement than teachers who posted low scores.¹²⁸ A similar correlation was found between high teacher test scores in Alabama and student achievement results.¹²⁹ The Alabama findings also suggested that modest increases in teacher test scores could shrink the test-score gap between African-American and white students in that state by two-thirds.¹³⁰

While teacher performance on competency exams is important, one recent study cautions that "most of the states that require teachers to pass competency exams have set relatively modest hurdles." The rigor of the exam and the scoring level needed to pass, therefore, are critical.

More crucial than even teacher performance on competency exams is a teacher's grasp of subject content. Economist Dan Goldhaber and RAND Education Director Dominic Brewer have authored several studies linking teacher knowledge of subject content to student achievement. In a 1996 study of 10th-grade students, Goldhaber and Brewer used data from the National Educational Longitudinal Study of 1988 (an ongoing survey of individuals who were in the eighth grade in 1988) and found that math and science teachers who majored in those subjects produced higher achieving students.¹³¹ They concluded that "in mathematics and science, it is the teacher subject-specific knowledge that is the important factor in determining tenth-grade achievement."¹³² In a 1999 study, they found that math students who have teachers with bachelor's or master's degrees in mathematics outperform students whose teachers do not hold these credentials.¹³³

Figure 20
Math Teachers Who Majored in Math, Grades 7-12, 1994



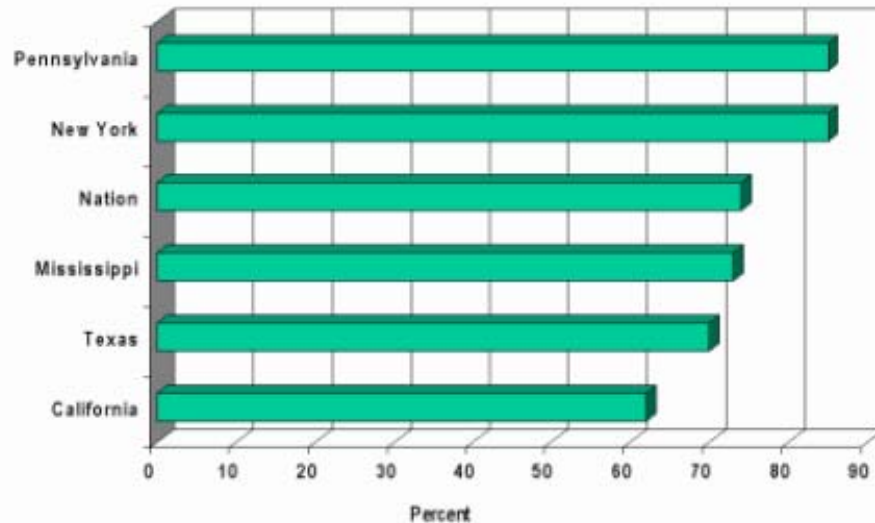
Source: Council of Chief State School Officers

Given the vital connection between subject-area content knowledge and student achievement, it is therefore troubling that, although there has been some improvement, California still continues to lag in terms of teachers with degrees in the subject which they teach. In 1994, 49.8 percent of California public secondary-school teachers whose main assignment was to teach math had a mathematics or math education degree. This statistic tied California with Alaska for a third-from-the-bottom ranking among all states, above only Washington and Idaho.¹³⁴ The national average was 72 percent. The one upside is that this ranking was an improvement over the state's dead-last ranking in 1991, when only 39 percent of public secondary-school math teachers had mathematics or math education degrees. If one adds math teachers who minored in math or math education, 61 percent of California public secondary-school math teachers majored or minored in math. Only Oregon, Alaska, and Washington had a lower percentage of such teachers.¹³⁵

California's ranking is not much better in the category of public secondary-school teachers who majored in science and whose main assignment is to teach science. Only 62 percent of California science

teachers majored in science, which tied the state with Oklahoma for a fifth-from-the-bottom ranking. Florida, Tennessee, Kentucky, and Louisiana ranked lower. The national average was 74 percent.

Figure 21
Science Teachers Who Majored in Science, Grades 7-12, 1994



Source: Council of Chief State School Officers

If science teachers who minored in science are added, 75 percent of California public secondary-school science teachers majored or minored in science. Again, this was still below the national average of 78 percent.¹³⁶ Overall, in 1994, 27 percent of California public secondary-school teachers lacked a degree in the subject they teach. This put California dead last among all states.¹³⁷

Some states are taking steps to improve the subject-area content knowledge of teachers. Pennsylvania Governor Tom Ridge's "Teachers for the 21st Century" program contains new standards requiring prospective high-school teachers to fulfill the same course requirements as their classmates seeking a bachelor's degree in a particular academic discipline. According to Eugene Hickok, Pennsylvania secretary of education, and Pennsylvania education official Michael Poliakoff, "This has always been a best practice in preparing teachers, since it requires them to develop a serious scholarly commitment and expertise in the subjects they teach."¹³⁸ As Hickok and Poliakoff observe, "No amount of training in teaching methodology can substitute for real intellectual maturation in an academic area."¹³⁹ The Pennsylvania program also requires a prospective teacher to maintain a minimum 3.0 GPA in the subject area in which he or she intends to teach.

For those teachers already in the profession, Governor Ridge's program would require a minimum of nine semester hours (or the equivalent) of subject-area-related professional-development coursework for all teachers every five years.¹⁴⁰ Model professional-development programs under the governor's sponsorship offer week-long, intensive subject-area coursework that upgrades teachers' knowledge of what they teach.¹⁴¹

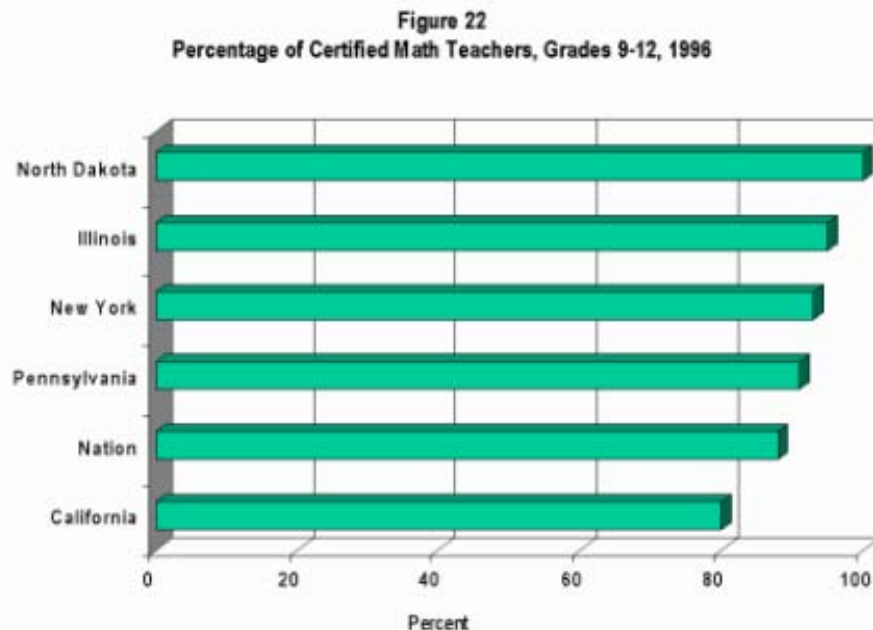
Finally, in administering its federal grants for math and science teachers, Pennsylvania requires that participating teachers take a pre- and post-test to demonstrate the value added to teachers' math and science skills.¹⁴²

Currently, there is no standardized curriculum or course of study in California's teacher-training programs.¹⁴³ Thus, it is difficult for school districts to know the subject-area content knowledge of prospective teachers. Also, one report notes that professional development classes in California have "too frequently consisted of a series of short, unrelated events: a blur of workshops, conferences, and courses covering every educational topic under the sun."¹⁴⁴

Given this chaotic situation, California should seriously consider the merits of Pennsylvania's teacher-quality program. However, if California decides to adopt a Pennsylvania-type program, any required subject-area knowledge must be linked to the state's new rigorous academic content standards. Without such an alignment, there will be a disconnect between the knowledge teachers are gaining and that which they will have to impart to students in the classroom.

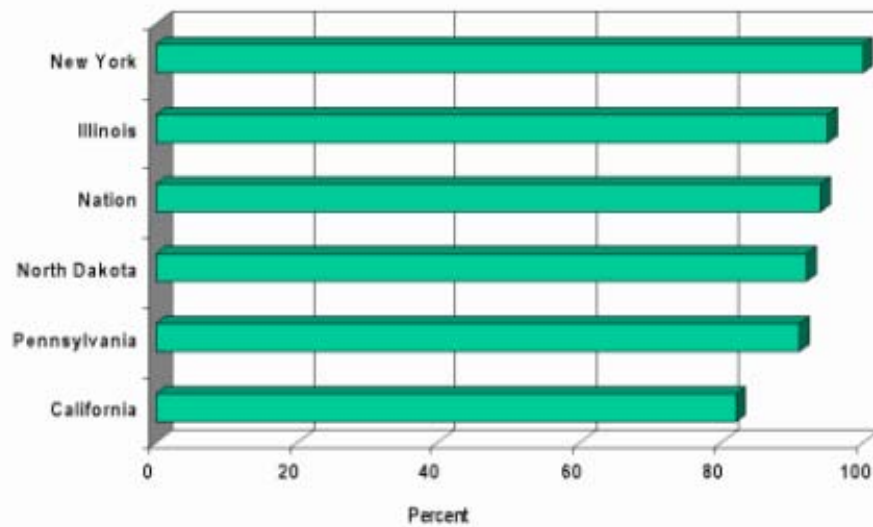
Teacher Certification

As one way of ensuring some basic level of competence in content knowledge, states certify teachers in various subjects. A recent study found that having a teacher with a certification in mathematics results in higher student achievement equivalent to "more than three-quarters of a year of schooling."¹⁴⁵ California ranks poorly in the percentage of teachers certified to teach the subjects to which they have been assigned.



Source: Council of Chief State School Officers

Figure 23
Percentage of Certified Chemistry Teachers, Grades 9-12, 1996



Source: Council of Chief State School Officers

In 1996, 80 percent of California math teachers in grades 9-12 were certified in mathematics. No other state had such a low percentage. California also ranked last in certified biology teachers (82 percent) and third-from-the-bottom in certified chemistry teachers (82 percent). The state was also below the national average in certified physics teachers and earth science teachers.¹⁴⁶ California's 1996 figures were all lower than 1994, and the picture for the seventh and eighth grades is even worse.

In 1996, just 51 percent of California's seventh- and eighth-grade public-school math teachers were certified. The national average was 65 percent. Also, only 44 percent of the state's public middle-school science teachers were certified. The national average was 63 percent.¹⁴⁷ These numbers are alarming because, as the Council of Chief State School Officers points out:

Many states find that indicators on middle school science and mathematics teachers are critical indicators for two reasons. First, middle grades are often where students develop strong interests and aspirations in science and mathematics, or, their interests shift to other subjects or their interest and achievement in science and math decline. Second, middle grades are often where states, districts, and schools find it is difficult to fill positions with well-qualified teachers in science and mathematics.¹⁴⁸

It should be remembered that certification, though important, is not imperative. Policymakers must not lose sight of the bigger picture which is mastery over subject content. As Hickok and Poliakoff note, "Students at expensive private schools have always had the benefit of subject-area specialists who are passionately devoted to their subject with or without traditional state certification"¹⁴⁹ As long as a teacher or prospective teacher is able to demonstrate subject mastery, student performance is likely to go up.

Instructional Practices

One of the key factors in improving student achievement is the instructional method used by teachers to impart knowledge to students. This issue goes deeper than popular discussions over phonics versus whole language or basic computation versus "new, new math." These debates, while important, are part of a larger battle between contending instructional philosophies that advocate fundamentally different ways of teaching children.

The reigning philosophy in schools of education and in the teaching profession is called "constructivism" or, in more extreme form, "radical constructivism." The constructivist philosophy believes that children construct their own knowledge. According to Dr. Tom Loveless, director of the Brown Center on Educational Policy at the Brookings Institution:

The premise of constructivism implies that the knowledge students construct on their own, for example, is more valuable than the knowledge modeled for them; told to them; or shown, demonstrated, or explained to them by a teacher. Echoing the historical mantra of progressive education—its means, ends, and motivating force—should be generated from within the learner, not decided by an external source. The teacher, the textbook, the curriculum, indeed, the entire school and the external authorities it embodies are recast as facilitators in the student's construction of new knowledge, no longer the sources of it.¹⁵⁰

In terms of concrete classroom activities, Dr. Loveless says:

Constructivism also strives to steer classrooms away from such traditional, facts-oriented learning as knowing the rules of spelling and grammar, knowing the rules of punctuation and capitalization, memorizing the multiplication tables and other basic arithmetical facts, and acquiring the basic decoding skills related to sound-symbol relationships. Instead, learning is directed toward problem solving, critical thinking, learning how to work in groups, and developing a healthy self-esteem. Basic skills are recognized as useful, but they are not given top priority in the constructivist classroom, nor is their mastery presumed necessary before higher-order tasks can be tackled.¹⁵¹

Dr. Loveless notes that California's curriculum frameworks in language arts, adopted in 1987, and mathematics, adopted in 1992, fully embrace the constructivist philosophy.¹⁵² The language arts framework criticized and deemphasized phonics reading instruction and separate formal instruction in spelling, grammar, punctuation, or capitalization.¹⁵³ According to the framework, learning to read and to express one's self with language is "so intensely personal and human" that it "cannot be limited to a daily list of ten or 15 skill objectives or the completion of meaningless worksheets."¹⁵⁴ The real objective is met when "the learner becomes the center of learning rather than the teacher."¹⁵⁵

Likewise, the mathematics framework says that teachers are "facilitators of learning rather than imparters of information," which allows students to "construct their own understanding of mathematics."¹⁵⁶

The problem with such frameworks and constructivist philosophy in general is that there is little empirical evidence to support them. Dr. Loveless observes that, "Student-centered practices may be defended on ideological grounds—that granting students power, whether it is educationally beneficial or

not, is intrinsically good—but empirical support for enhanced learning is weak."¹⁵⁷ Bonnie Grossen, an education researcher at the University of Oregon, notes that in a massive federal study of teaching methodologies, "Most of the models were 'child centered,' and the more vehemently 'child centered' the model was, the poorer the results were."¹⁵⁸

The recently adopted state academic content standards are a significant rebuke to both the curriculum frameworks and constructivist philosophy. California's new standards emphasize acquisition of basic knowledge and skills, getting the right answer, and the teacher's role as the source of knowledge and skill information.

The problem, of course, is that regardless of what California's legislators say, teachers in the classroom, many of whom are still guided by constructivist ideology, will likely continue to teach students using failed constructivist techniques. Until such practices are stopped, improving student achievement will be a very slow and difficult process.

One egregious example of continuing constructivist failure is Columbus Elementary School in Berkeley. While state education officials whine about California's low ranking in per-pupil spending, Columbus Elementary spends about \$8,000 per pupil, which is far above the national average of \$6,300 per pupil.¹⁵⁹ These added dollars pay for more teacher training, equipment, books, student mental health counseling, social workers, after-school tutoring, science labs, and day-care facilities.¹⁶⁰ Yet, despite all these "wish-list" extras, the school's test scores have plummeted dramatically.

While the rest of the state saw increased test scores for the lower elementary grades, scores on the SAT-9 exam at Columbus for grades two and three fell over the last two years and now range from the 23rd to the 35th percentile in reading, math, language usage, and spelling against the national norm.¹⁶¹ Thus, for example, the average Columbus third-grader reads at a lower level than 77 percent of students nationally. The scores for grades four and five have also fallen across the board.¹⁶²

Why are Columbus students performing like Yugos when the school has a Cadillac budget? The main culprit is the school's dogmatic ideological commitment to the constructivist teaching methodology called "discovery learning." Discovery learning, like all constructivist techniques, asks students to figure out things for themselves through trial and error and individual projects, without guidance from teachers as to whether they are getting things right.

In a devastating article, *Los Angeles Times* reporter Richard Lee Colvin witnessed "discovery learning" in action at Columbus:

Ann Gilbert, a fifth-grade teacher, watched as her students worked in pairs measuring the angles of various geometric shapes. The point of the exercise was to discover that the size of the angles in five-sided shapes always add up to the same. But she wasn't telling her students that. Even when they came up to her with questions, she didn't clue them in. Such a lesson probably won't pay off in higher test scores immediately, she said. "But it will by the end of high school because they'll really know it," she said.¹⁶³

This disturbing lack of teacher guidance was the rule, not the exception, at Columbus. According to Mr. Colvin, when students failed to realize, after a science experiment, that the color white absorbs less heat than the color yellow, a Columbus teacher reacted thusly:

Rather than correct the mistake, or have them repeat the experiment, teacher Nancy Bynes tried to start a discussion about the results. "The yellow and white results are a mystery to me. I want to hear your ideas," she said. When her prompts failed to get a discussion started, Bynes told the students to write about what they had seen. Some produced a few partial sentences. A few filled a page. One girl wandered around the room until Bynes sat her down, wrote out several sentences, and left blanks for her to fill in. "It shows you we need the services we're getting," Bynes said. "We have a lot of work to do, a lot of work to do."¹⁶²

Such teaching methodology defies common sense and flies in the face of experience. When teachers refuse to teach, when they refuse to impart knowledge, when they refuse to offer real guidance to students, is it any wonder that students flounder, lose interest, and fail? The teachers and administrators at Columbus and the many other schools that peddle similar constructivist techniques are committing crimes against California's children by destroying their futures. But if constructivism does not work, what does?

Over the last few decades, only a tiny number of instructional methods have been shown to have a large positive effect on student achievement. The method with one of the most significant research bases is called direct instruction. Direct instruction is also the polar opposite of constructivism.

According to Lynne Cheney, former head of the National Endowment for the Humanities and now a fellow at the American Enterprise Institute:

Direct Instruction teachers, operating from detailed scripts, tell kids what they need to know, rather than letting them discover it for themselves, as ed schools advise. Direct Instruction teachers drill students on lessons (a method education professors sneeringly call "drill and kill"). They reward right answers and immediately correct wrong ones, flying in the face of ed-school dogma downplaying the importance of accuracy.¹⁶⁵

In its recent major study of 24 different teaching methodologies, the American Institutes for Research (AIR) uses the following definition of direct instruction:

Direct Instruction provides a model of instruction that emphasizes the use of carefully-planned lessons, designed around a highly specified knowledge base and a well-defined set of skills for each subject. A central element of the theory underlying Direct Instruction is that clear instruction eliminates misinterpretations and can greatly improve and accelerate learning.¹⁶⁶

Specifically, direct instruction asks teachers to use "presentation books," which are lesson plans that enable highly-scripted, rapid-paced instruction. These presentation books give teachers instructions for monitoring and assessing student progress, and for providing immediate feedback to students.¹⁶⁷ Also, a placement test is used for initial assignment of students by performance level. The pace of instruction is determined by the performance level of each group. Students are tested frequently in order to monitor their progress.¹⁶⁸

Old fashioned though it may seem to education faddists, the empirical evidence overwhelmingly demonstrates that direct instruction improves all aspects of student performance. In their analysis of 34 different studies which examined direct instruction, University of Oregon Professor Siegfried Engelman and his colleague G.L. Adams found that direct instruction was effective in improving overall student achievement, as well as achievement in language, reading, mathematics, spelling, health, and science.¹⁶⁹ The AIR study found that the positive effects were long lasting and widespread: "Direct Instruction also appears to improve chances for later success (e.g., graduation rates, and application and acceptance to college rates). Research also suggests that students who begin Direct Instruction with low IQs seem to progress at the same rate as students who begin Direct Instruction with higher IQs (i.e., the approach is effective for both high- and low-achieving students)."

In the Follow-Through study, a comprehensive federal effort to analyze a wide range of different teaching methodologies, direct instruction increased student achievement in math, reading, language, and spelling more than any other instructional practice.¹⁷⁰ According to University of Oregon education researcher Bonnie Grossen, "Most analysts of the Follow-Through evaluation data concluded that teacher-directed instruction resulted in stronger academic outcomes than the popular child-centered models."¹⁷¹

In addition to improving student academic achievement, direct instruction also improves students' feelings of self-worth. The AIR study noted that, "Direct Instruction also appears to improve students affective behavior and social skills: self-esteem/ concept, attitudes toward self and school, attribution of success or failure to self or outside, and sense of responsibility."¹⁷² Summarizing the Follow-Through self-esteem indicators, Bonnie Grossen points out an obvious irony:

The models that had improved self-esteem as their primary goal often had more negative outcomes, even on the self-esteem measures. The Direct Instruction model did not target self-esteem as a goal. However, the sponsors predicted that, by targeting academic success and engineering the instruction so students were highly successful every step of the way, self-esteem would result. . . . [T]hese predictions were accurate.¹⁷³

Direct instruction was tried on an experimental basis in San Diego and the results were so eye-opening that the ABC-TV news show 20/20 aired a special segment on the success of the program. ABC found that, because of direct instruction, kindergartners in low socioeconomic areas were reading and doing math above grade level. One pleased parent said of his kindergarten child's performance: "He's multiplying. He's tracking three digit numbers, carrying numbers."¹⁷⁴

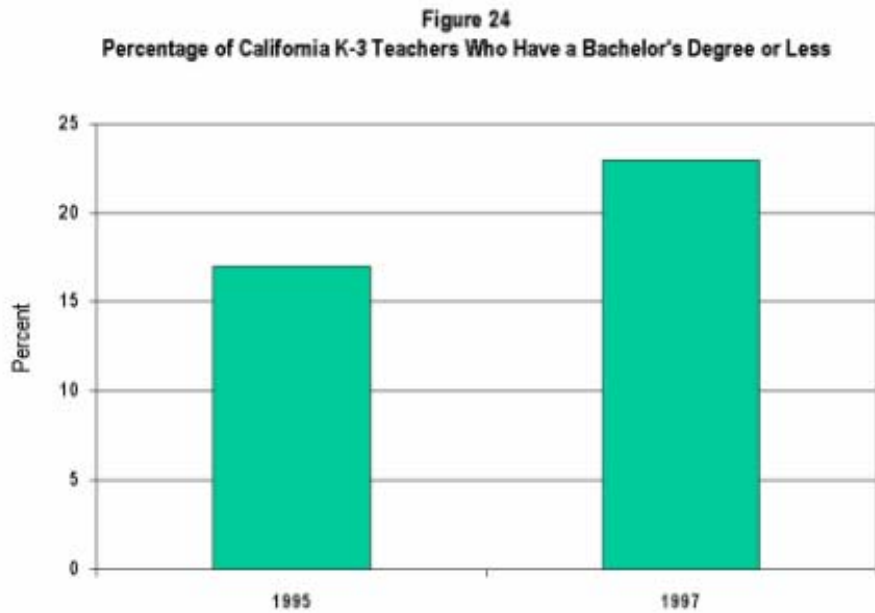
ABC reporter John Stossel, after witnessing impressive performances of spelling and math by young students, commented: "Of course this regimentation works. In California, where education reform has failed and failed again, this school [in San Diego] and dozens of others have raised test scores sharply by using direct instruction." He was shocked, therefore, to learn that despite its success, direct instruction was to be discontinued in San Diego because, as the then San Diego school superintendent claimed, "it doesn't allow [students] to be as creative as they'd like."

The San Diego superintendent's prejudice against direct instruction, unfortunately, is the dominant attitude of the education establishment in California. Yet, if the state is really serious about improving student achievement, a radical change in teaching methodology must occur. Only scientifically-proven

instructional practices such as direct instruction should be used in the classroom. The future of education in California must not be Columbus Elementary.

Class-Size Reduction

Perhaps the most popular education reform passed in recent years in California is class-size reduction. Parents, teachers, and politicians love it because it makes easy, superficial sense: smaller classes mean teachers have more time to spend helping individual students. From 1996-97 to 1998-99, California spent approximately \$5 billion on class-size reduction, which targets grades K-3.



Source: CSR Research Consortium

Under the program's provisions, there is to be one certificated teacher for each group of 20 students or less. Teachers are also to receive staff development training in techniques for small-group instruction and teaching reading. In 1998-99, schools which offered a full school day with reduced class size received \$832 per participating student. In future years, this amount will be adjusted for inflation. Schools may also offer reduced class size for part of the day, primarily for math and reading instruction. The class-size program is being expanded to cover ninth-grade core classes.

Despite its popularity, is reducing class size really an effective way to improve student performance? According to University of Rochester Professor Eric Hanushek, a leading expert on class-size reduction, the answer is "no." In a 1998 study, Professor Hanushek found little, if any, correlation between reduced class size and increased student achievement.¹⁷⁵

For example, between 1950 and 1995, pupil-teacher ratios fell nationally by 35 percent. Yet student performance indicators such as scores on the National Assessment of Educational Progress did not go up.¹⁷⁶ After surveying 277 studies that attempted to correlate pupil-teacher ratio and student achievement, Professor Hanushek concluded: "There is little reason to believe that smaller class sizes

systematically yield higher student achievement. While some studies point in that direction, an almost equal number point in the opposite direction."¹⁷⁷

Data from overseas also offer no encouragement for backers of smaller classes. When Professor Hanushek examined the relationship between student performance and pupil-teacher ratios using six international tests in math and science administered between 1960 and 1990, he actually found a correlation between larger class sizes and improved student performance.¹⁷⁸

Even the Tennessee class-size-reduction experiment, which California officials cite to support their efforts, does not hold up under analysis. In Tennessee, reducing class size did help students in kindergarten, but didn't improve student performance beyond the first grade.¹⁷⁹

Further, the Tennessee experiment compared student performance in classes of 15 versus regular-sized classes of 23. Professor Hanushek points out: "The California program was designed to move classes down to around that of the regular-sized classes in the Tennessee experiment. No evidence from [the Tennessee experiment] relates to the likely effects of such a policy change (as opposed to moving classes down to the level of 15-to-1)."¹⁸⁰ Given this lack of evidence, Professor Hanushek says that "across-the-board policies of class size reductions, such as those enacted in 1996 for elementary education through grade three across the State of California, are unlikely to have a beneficial effect on overall student performance."¹⁸¹

Professor Hanushek's conclusion is that the current wave in enthusiasm for class-size reduction is misguided. He warns that:

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.¹⁸²

Professor Hanushek's predictions and conclusions have been borne out by studies of the California class-size-reduction program. Using data from California's SAT-9 tests for students involved in the class-size-reduction program, a June 1999 study by the CSR Research Consortium, which included RAND and several other education research organizations, found only a slight achievement gain by third-graders.¹⁸³ This gain did not come close to matching even the relatively small gain resulting from Tennessee's class-size-reduction experiment.¹⁸⁴ Also, while in Tennessee the more disadvantaged students experienced the greatest achievement increase, no equivalent increase was observed among disadvantaged students in California.¹⁸⁵ As the study's authors observe, "these findings are inconsistent with the Tennessee experiment that so influenced California legislators."¹⁸⁶

Further, the Consortium study found that when compared to other variables affecting student achievement, such as family and socioeconomic status, class-size reduction had by far the weakest effect on student achievement.¹⁸⁷ The study also pointed out that any small positive effect of class-size reduction on student achievement is diluted by the fact that: "Other circumstances could account for some of the [class-size-reduction] effect, so the student achievement gains in smaller classes should probably be attributed to [class-size reduction] and an unknown combination of other reforms."¹⁸⁸ In

other words, it is unknown "whether it is even the [class-size reduction] program that was the cause of this gain."¹⁸⁹

Finally, the Consortium study reiterated Professor Hanushek's point about the impact of the difference between the actual numbers of students in Tennessee's reduced class size and in California's reduced class size. In addition to California's unique problems of too many uncredentialed teachers and large numbers of LEP students, the Consortium study noted that classes in Tennessee's class-reduction experiment "were 13 to 17 students per teacher, not 20."¹⁹⁰ Such discrepancies, concluded the study, could explain the difference in student achievement between the two states' programs.¹⁹¹

Other researchers have also concluded that California's class-size reduction program is not cost-effective. Edward Lazear, an economics professor at the Stanford University Graduate School of Business, has built a statistical model showing that "reducing class size from 30 students to California's target of 20 would increase average educational performance by only four percent—but it would cost 30 percent more."¹⁹² Professor Lazear, therefore, concludes that "blanket policies of class-size reduction are inefficient and wasteful."¹⁹³

Instead of class-size reduction, Professor Lazear, like Eric Hanushek, emphasizes the importance of teacher quality. "A good teacher in a large classroom," says Professor Lazear, "is more effective than a poor teacher in a small one."¹⁹⁴ Professor Hanushek himself points out that, "Variations in teacher quality have been shown to be extraordinarily important for student achievement, and the econometric studies providing such results indicate that these variations completely dominate any effects of altered class size."¹⁹⁵

Yet, a huge problem with California's class-size reduction program has been precisely its detrimental effect on the quality of teachers in the classroom. In the first two years of the program, the K-3 teacher workforce increased by 38 percent or 23,500 teachers. However, as the Consortium study found, "Teachers in K-3 classrooms in 1997-98 tended to be less experienced, less educated, and less likely to be fully credentialed than the teachers in these grades prior to [class-size reduction]."¹⁹⁶ Whereas in 1995, only one percent of K-3 teachers were not fully credentialed, by 1997 that number had risen to 12 percent. In 1997, 23 percent of K-3 teachers had a bachelor's degree or less versus 17 percent in 1995. In 1997, 28 percent of K-3 teachers had three years of experience or less versus 17 percent in 1995. Many new teachers were hired with emergency permits, waivers, or internship credentials.¹⁹⁷ While the impact of credentials on student achievement is still controversial, it is more accepted that the lack of subject-matter knowledge among new teachers will have a negative impact on California students.

The schools hardest hit by the drop in teacher quality were those with the highest percentage of low-income students. According to the Consortium study: "Prior to class-size reduction, schools with the highest percentage of low-income students had only about 1 percent more uncredentialed teachers than schools with the lowest percentage of low-income students. By 1997-98, that gap had widened to just over 15 percent."¹⁹⁸

This drop in teacher quality spawned by California's class-size-reduction program is likely a partial explanation, at least, for the lack of significant improvement in student achievement in the smaller classes. As Professor Hanushek says: "Thus, if new [teacher] hires resulting from a class-size reduction

policy are above the average quality of existing teachers, average student performance is likely to increase. If below, average student performance is likely to fall with class-size reductions."¹⁹⁹

Finally, it is not apparent that the big selling point for class-size reduction—more attention by teachers to individual student needs—is actually occurring in the classroom. The Consortium study found that based on survey data, "teachers in both types of classes [i.e., reduced-size and non-reduced size] spent on average about the same time working individually with students in language arts and mathematics."²⁰⁰ Teachers in reduced-sized classes did devote some extra time to poor readers. However, the Consortium study noted, "that extra time was small: on average, poor readers received individualized help three times a week in smaller classes compared to two and a half times a week in larger classes."²⁰¹

Californians must demand education reforms that work. The evidence from overseas, from the vast bulk of the academic literature, from experiments in other states, and from California's own experience strongly demonstrates that class-size reduction does not work. It does not greatly improve student performance, and it reduces teacher quality and costs billions of tax dollars. It should be abandoned and the money redirected to reforms with a proven record of effectiveness.

Teacher Vs. Non-Teacher Ratio

Although the pupil-teacher ratio has received much attention in California over the last few years, critics of the current public school system point to the ratio of non-teachers to teachers as equally important. It is argued that the higher the number of non-teachers to teachers, the greater the likelihood of more bureaucracy, which siphons off tax dollars that should go into the classroom.

According to the latest figures from the U.S. Department of Education's National Center for Education Statistics, California's public education system had 468,246 employees in fall 1996. Of these, 219,389 were non-teachers and 248,857 were teachers. The ratio of non-teachers to teachers was just under one to one.

This ratio, however, has undoubtedly changed because of the increase in the number of teachers resulting from California's class-size-reduction program. In 1997-98, the state said the number of teachers had climbed to 270,497.

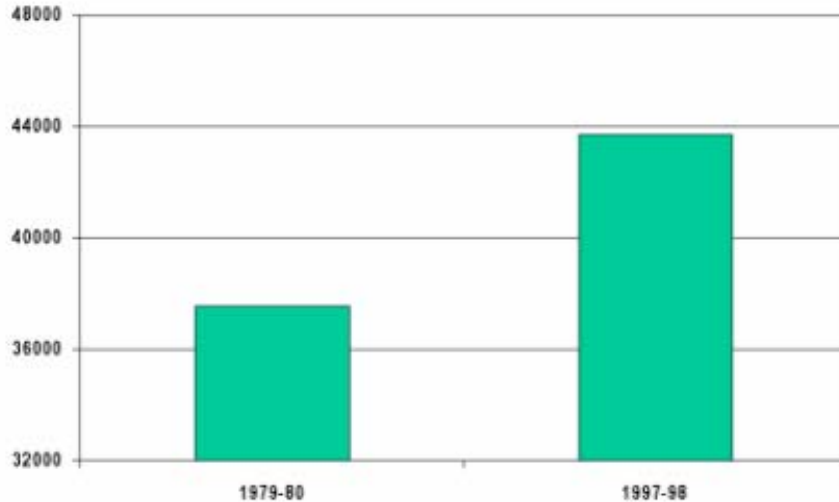
Although the non-teacher to teacher ratio may have decreased, the question of bureaucracy still remains, especially when one considers the lean administration in private school systems such as the Catholic parochial system.

Teacher Salaries and Benefits

According to the U.S. Department of Education, in 1997-98, California ranked tenth among all states in teacher salary with an average salary of \$43,725. In that same year, California ranked eighth in the salary of instructional staff (supervisors, principals, classroom teachers, and other instructional staff) with an average salary of \$45,610.

Not only are California teacher and instructional staff salaries among the most generous in the nation, these salaries have increased significantly in real terms over the years. In constant 1997-98 dollars, the average annual teacher salary rose from \$37,543 in 1979-80 to \$43,725 in 1997-98—a real inflation-adjusted increase of 16.5 percent. Similarly, the average annual salary for instructional staff, in constant 1997-98 dollars, rose from \$38,806 in 1979-80 to \$45,610 in 1997-98—a real increase of 17.5 percent.

Figure 25
Inflation-Adjusted California Average Annual Teacher Salary



Source: U.S. Department of Education

California teacher salaries also compare very favorably with the state's average per-capita income and the average private sector salary. In 1997-98, the average teacher salary in California was 70 percent higher than the state's average per-capita income. Also in 1997-98, the average teacher salary in California was 43 percent higher than the average salary in the private sector.

In addition to their salaries, teachers in California receive generous benefit packages. The California Department of Finance estimates teacher benefits at 30 percent of salaries. Using this methodology, the combined average teacher salary and benefit package in 1997-98 would have a value of \$56,844.

It is often claimed that teachers in California are underpaid. Depending on what teacher salaries are being compared to, that may or may not be true. What is certainly true, however, is that teacher salaries and salary increases are not determined by supply and demand for teachers in different fields. Because of the high demand in industry for math and science majors, there is an undersupply of math and science teachers who have majored in these subjects. This undersupply problem is not as acute in other fields such as English or the social sciences. Yet, despite the differences in supply and demand, all teachers, regardless of what subject they teach, are paid based on the same uniform salary scale. Does this make sense?

If there is a higher demand for math and science teachers relative to teachers in other fields, then it would be more sensible to establish a differential pay scale and pay math and science teachers more

than teachers in other fields. Wages and salaries in the private sector are determined by supply and demand for specific types of labor. The burden of proof is on those who claim it should be different in the teaching profession.

Some charter schools in California hire teachers on individual annual contracts, paying and retaining teachers based on the achievement of their students. Instead of uniform wages based on a union collective-bargaining agreement, teacher salaries are based on performance. Not only does this model allow for pay based on merit, it also allows charter school officials to pay higher salaries to teachers in fields where there is higher demand and competition for scarce personnel resources is great. Despite the self-interested objections of the teacher unions, expansion of this model beyond charter schools should be given serious consideration.

Expenditures

Total Spending

California law basically guarantees that education is the state's largest expenditure. State spending on K-12 education is guided by the requirements of Proposition 98, the 1988 voter-approved state constitutional amendment that established a minimum funding level for K-12 schools and community colleges. Prop. 98 K-12 education funding is calculated as the sum of State General Fund dollars allocated by state government to K-12 schools plus local property tax revenues devoted to schools. In 1999-00, the Prop. 98 education funding total is estimated to be \$33.6 billion. It is this Prop. 98 spending total that is most often used by state officials and the media to describe the amount California spends on education.

How much education spending is dictated by Prop. 98 in any given year? The minimum funding level required by Prop. 98 is determined by one of three specific formulae. Which one of these formulae is used for a given year is determined by the economic conditions faced by the state at that time. The requirements of Prop. 98 may also be suspended under certain circumstances.²⁰²

Table 1
Total K-12 vs. Prop. 98 Revenues
(1999-2000)

	Total K-12 Revenues \$ Millions	Proposition 98 Revenues \$ Millions
State General Fund	\$26,045	\$23,748
State Lottery	786	N/A
Other State Funds	65	N/A
Federal Funds	4,354	N/A
Local Property Tax	9,936	9,865
Local Debt Service Tax	498	N/A
Other Local Funds	2,595	N/A
TOTAL	\$44,279	\$33,613

Source: California Department of Education

Although the Prop. 98 spending total is commonly used to describe California education spending, there are many other sources of education funding that do not make it into the Prop. 98 calculation. For example, the federal government's 1999-00 contribution of nearly \$4.4 billion to education spending in California isn't counted, even though it accounts for 10 percent of total K-12 revenues. Big ticket items included in this federal contribution are: approximately \$1 billion in Title I money for poor and disadvantaged students, \$513 million for special education, and \$129 million for class-size reduction.

Also omitted are hundreds of millions of dollars in state and local funds allocated annually to pay for school capital costs, i.e. debt service on state and local school construction bonds. This omission is curious since every time a state or local school construction bond makes the ballot, supportive politicians and education officials always claim that a vote for the bond is a vote for children's education. How, they ask, can Johnny or Jenny learn if he or she is sitting in a run-down overcrowded classroom? Yet, once those bonds are approved, the annual cost of the bonds is not included in how much California spends to educate Johnny or Jenny.

In addition, \$786 million in State Lottery money, \$2.6 billion from various local fund sources, and \$65 million from various other state fund sources are not counted in calculating 1999-00 Prop. 98 K-12 funding.

All these uncounted education revenue sources add up to about \$10.7 billion. Add this amount to the \$33.6 billion in Prop. 98 K-12 funding and one gets a total of \$44.3 billion in total K-12 revenues in California for 1999-00. This is more than a 10 percent increase over the \$40.1 billion of total revenues devoted to K-12 in 1998-99.

According to the latest data (1996-97), the state reports that schools spend 61.7 percent of their funding on classroom instruction. It should be noted that the state Little Hoover Commission has estimated that

salaries of teachers and instructional aides account for 80 to 90 percent of classroom instruction costs.²⁰³

Categorical Spending

See Table 2: Categorical Spending Programs (1999-2000)

Revenues devoted to education are allocated in one of two main ways. First, about two-thirds of all funds are distributed to school districts as general revenue limits or other no-strings-attached distributions that allow the districts full flexibility in choosing how to spend these tax dollars. The remaining one-third of education revenues distributed to school districts is earmarked for specific designated purposes and cannot be spent on the general expenses of the district. This latter type of funding is known as categorical aid.

There are currently more than 60 categorical programs funded by the state and several more funded by the federal government. Special education, class-size reduction, and desegregation are among the more well-known categorical programs. Table 2 shows the spending on the major state categorical programs contained in the 1999-2000 state budget.

There are significant problems with the categorical approach to education funding. In its review of categorical programs, the state Legislative Analyst's Office (LAO) found the following major deficiencies:

- **No conclusive evidence on the success of categorical programs.** Most programs are never evaluated. Categorical programs that have been evaluated reveal a mixed record of success.
- **State rules restrict needed local flexibility.** Complex and detailed program requirements in some programs reduce the flexibility needed by schools to maximize the impact of funds on improving student achievement.
- **A fragmentation of local programs.** Without a local strategy for integrating categorical programs with the basic educational program, process requirements of the categorical programs shape local responses rather than the needs of students.
- **Funding formulas create negative incentives.** Some categorical programs create financial incentives that encourage schools to act in ways that are not in the best interests of students.
- **Blurred accountability for meeting student needs.** Creating separate programs for specific student needs creates confusion about who is responsible for improving student achievement.²⁰⁴

According to the LAO, "there is little evidence that categorical programs successfully meet their intended goals."²⁰⁵

In an effort to give local districts some flexibility in spending categorical funds, the legislature created the so-called "mega-item." Under the mega-item, districts were allowed to move up to 15 percent of funds from one categorical program to another in order to meet local needs. The 1999-00 Budget Act,

however, eliminated the mega-item. In its place, the Act increased slightly the percentage of categorical dollars that districts can shift between categorical programs, but now districts must report any shifted amounts to the California Department of Education. These limited attempts to increase flexibility, unfortunately, still fail to address the fundamental problems with the categorical approach to funding.

If the categorical method of funding is flawed, then how should these funds be distributed? A better approach would be to block grant funds to local districts, attaching only limited basic requirements. The LAO recommends several types of block grants. For example, a "District Accountability Block Grant" would provide funds for textbooks, new teacher training, and facility improvements. However, "If a district certified that it provides an adequate level of support in these areas, however, it would be free to spend these funds for other high-priority purposes."²⁰⁶ The LAO also recommends block grants based on how well local districts are meeting the state academic content standards.²⁰⁷ Finally, the LAO recommends block grants in general program areas such as staff development and compensatory education.²⁰⁸

Block granting categorical funds would accomplish several objectives. First, it would increase the chance that actual local needs would be met. It would also increase locally-elected officials' responsibility for spending decisions, thereby allowing voters to know where the buck stops and to do something about it.

State Per-Pupil Spending

When Governor Gray Davis signed the state budget, the *San Francisco Chronicle* reported that, "Although the amount spent per pupil will rise by \$274 to \$6,025, state spending remains far lower than the national average of \$7,583 in the 1999-2000 school year."²⁰³ The state's per-pupil spending figure, however, is misleading.

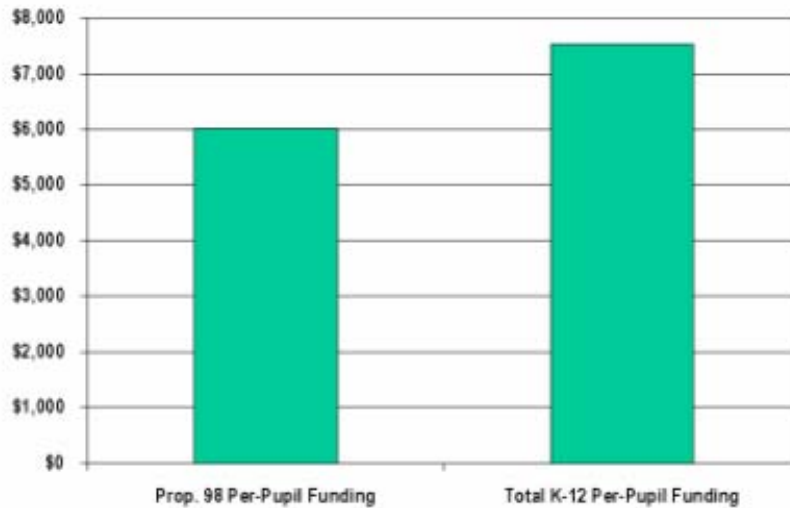
The official per-pupil spending rate of \$6,025 cited by the *Chronicle* is derived by dividing Prop. 98 K-12 revenues (i.e., the sum of state General Fund dollars for K-12 education plus local property tax contributions) by the average daily number of students attending school in California (otherwise known as average daily attendance or ADA). As noted above, however, Prop. 98 revenues (\$33.6 billion) grossly understate the true amount of K-12 funding.

If one were instead to divide total 1999-00 K-12 revenues of \$44.3 billion by the state's average daily attendance of just under 5.6 million students, one would get a per-pupil funding figure of \$7,937. Even if one takes out money spent on adult education (\$584 million) and pre-kindergarten child-development programs (\$1.5 billion), one still gets approximately \$7,535 in per-pupil funding. That's around 25 percent higher than the per-pupil funding figure of \$6,025 given out by state officials and used by the media.

Further, if one were to take a historical look at per-pupil funding in California, one would find that the state is spending much more now than in years past. For instance, using 1996-97 constant inflation-adjusted dollars, the American Legislative Exchange Council (ALEC) calculates that California spent \$4,296 per pupil in 1976-77 versus \$5,469 in 1996-97—a 27.3-percent real increase.²¹⁰ Using 1995-96 constant dollars, the U.S. Department of Education's National Center for Education Statistics (NCES), in its *1998 Digest of Education Statistics*, calculates that California spent \$2,229 per pupil in 1959-60

versus \$5,108 in 1995-96—a 129-percent real increase.²¹¹ Remember, too, these figures do not include all the revenue sources that make up total K-12 funding.

Figure 26
1999-2000 California Per-Pupil Funding



Source: California Department of Education and Pacific Research Institute Analysis

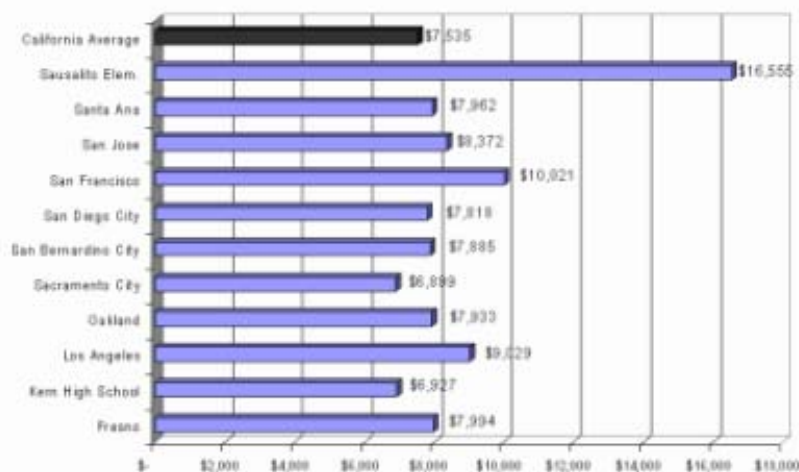
The point is, California is not penny-pinching education. The poor performance of schools and students in the state cannot be blamed on the all too common complaint that not enough money is being spent on public education. After examining decades of academic research, University of Rochester Professor Eric Hanushek found that, "there is little systematic relationship between school resources and student performance."²¹² The point, says Hanushek, is that "how money is spent is much more important than how much is spent."²¹³

In other words, no matter how much is spent on education, unless those funds are channeled into programs that work (e.g., teacher training emphasizing subject-matter competence, implementation of the state's rigorous academic content standards, and the introduction of competition into the system through school choice), Californians should not expect any change or improvement in the state's public education.

District Per-Pupil Spending

It should also be noted that the per-pupil spending numbers for many school districts are much higher than the statewide figures. Working on behalf of Pacific Research Institute, Carl Brodt, a commercial bank vice president and certified management accountant, undertook the daunting task of analyzing the budgets of 10 large school districts in California, plus the budget for the Sausalito Elementary School District. Figure 27 shows the budget revenues and per-pupil funding for these districts in 1999-00.²¹⁴

Figure 27
1999-2000 Per-Pupil Revenue Funding



Source: Compiled from 1999-00 school district budgets and analyzed by Carl Brodt.

As one can see, the per-pupil funding amounts are very considerable. Oakland's per-pupil funding is \$7,933, while Fresno's is \$7,994. San Jose will have funding of \$8,372 per student, Los Angeles will have \$9,028, and San Francisco will have \$10,021. Most amazing, though, is the Sausalito Elementary School District in Marin County, which will have funding for a staggering \$16,555 per student.

Furthermore, confirming Professor Hanushek's research mentioned earlier, there is no guarantee that such high spending figures will increase student achievement. For example, in Sausalito, where per-pupil spending is thousands of dollars higher than the highest per-pupil-spending state, large majorities of students in nearly all grades scored below the 50th percentile on the state-administered SAT-9 test.

High funding and low test scores are not the only problems afflicting the districts analyzed by Mr. Brodt. As he was gathering the data for his calculations, he encountered incompetence, obfuscation, and byzantine bureaucracy. Mr. Brodt's first-hand observations are included in this section and should serve as a wake-up call to Californians who mistakenly believe that public inquiry is welcomed by the official representatives of "public" education.

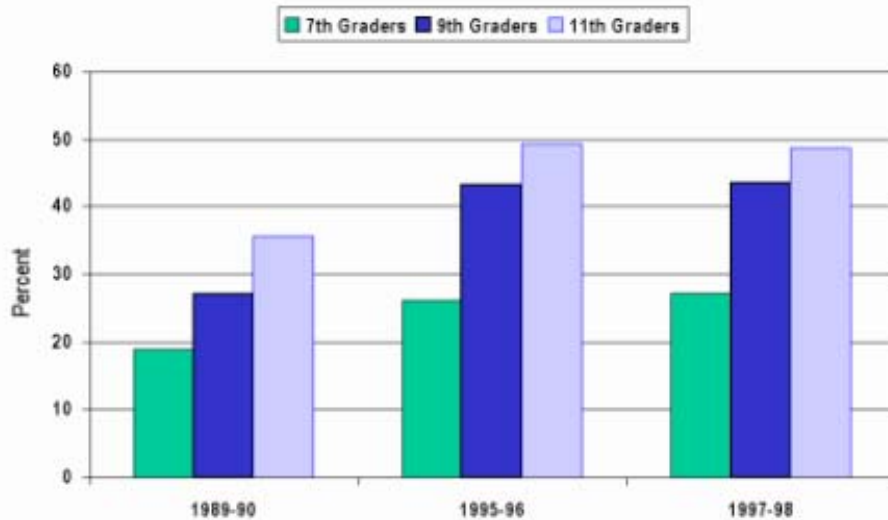
Table 3 Percent of Students Scoring at or above the 50th Percentile on the 1999 Statewide SAT-9 Test

District		Grade 2	Grade 6	Grade 9	Grade 11
Oakland	Reading	35%	24%	18%	20%
	Math	41%	30%	35%	34%
Sausalito	Reading	30%	38%	—	—
	Math	36%	33%	—	—
Fresno	Reading	26%	30%	21%	29%
	Math	35%	38%	37%	44%
San Jose	Reading	44%	45%	44%	44%
	Math	50%	48%	61%	57%
San Francisco	Reading	55%	45%	43%	41%
	Math	60%	56%	64%	60%
Sacramento	Reading	51%	41%	28%	33%
	Math	45%	50%	42%	45%
Kern H.S.	Reading	—	—	28%	27%
	Math	—	—	41%	34%
Los Angeles	Reading	24%	24%	18%	25%
	Math	36%	42%	31%	38%
San Bernardino	Reading	28%	25%	19%	25%
	Math	36%	35%	32%	38%
San Diego	Reading	50%	45%	38%	38%
	Math	56%	50%	49%	49%
Santa Ana	Reading	21%	15%	10%	15%
	Math	37%	28%	29%	35%

Drug Abuse

The first edition of the *Index* used 1995-96 data on drug use by secondary-school students. According to the latest figures from 1997-98, there has been little change in drug-usage rates among students in the seventh, ninth, and eleventh grades.

Figure 28
Use of Any Illicit Drug By California Students in the Last Six Months



Source: California Department of Education

For instance, use of "any illicit drug at least once in the last six months" was reported by 18.9 percent of seventh-graders in 1989-90, 26.2 percent in 1995-96, and 27.2 percent in 1997-98; by 27.0 percent of ninth-graders in 1989-90, 43.1 percent in 1995-96, and 43.4 percent in 1997-98; and by 35.6 percent of eleventh-graders in 1989-90, 49.4 percent in 1995-96, and 48.7 percent in 1997-98.

Use of "marijuana at least once in the last six months" was reported by 6.8 percent of seventh-graders in 1989-90, 10.9 percent in 1995-96, and 11.2 percent in 1997-98; by 19.6 percent of ninth-graders in 1989-90, 34.2 percent in 1995-96, and 32.5 percent in 1997-98; and by 27.6 percent of eleventh-graders in 1989-90, 42.8 percent in 1995-96, and 41.6 percent in 1997-98.

Use of "cocaine at least once in the last six months" was reported by 2.1 percent of seventh-graders in 1989-90, 1.8 percent in 1995-96, and 3.1 percent in 1997-98; by 5.0 percent of ninth-graders in 1989-90, 6.4 percent in 1995-96, and 5.7 percent in 1997-98; and by 7.4 percent of eleventh-graders in 1989-90, 7.2 percent in 1995-96, and 7.9 percent in 1997-98.

Use of "inhalants at least once in the last six months" was reported by 10.5 percent of seventh-graders in 1989-90, 15.6 percent in 1995-96, and 18.3 percent in 1997-98; by 11.0 percent of ninth-graders in 1989-90, 21.9 percent in 1995-96, and 21.1 percent in 1997-98; and by 8.8 percent of eleventh-graders in 1989-90, 14.7 percent in 1995-96, and 14.8 percent in 1997-98.

Finally, use of "LSD at least once in the last six months" was reported by 1.3 percent of seventh-graders in 1989-90, 2.2 percent in 1995-96, and 1.8 percent in 1997-98; by 2.9 percent of ninth-graders in 1989-90, 9.9 percent in 1995-96, and 5.9 percent in 1997-98; and by 5.9 percent of eleventh-graders in 1989-90, 10.8 percent in 1995-96, and 9.8 percent in 1997-98.

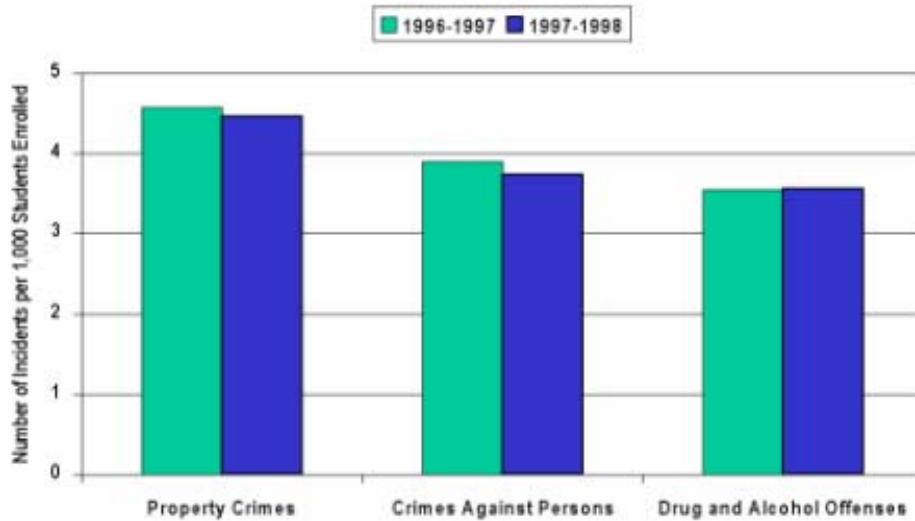
As one can see, although rates of drug use stayed relatively stable between 1995-96 and 1997-98, the 1997-98 rates were still significantly higher than those in 1989-90. How much of the blame for this increased drug use lies with California's schools is difficult to say. Obviously, however, students cannot perform their best if they are under the influence of drugs.

Crime

In the wake of highly-publicized school shootings around the country, parents are more and more concerned about the safety of their children. Since the release of the first edition of PRI's *Index*, California has finally gathered statewide statistics on crime in the state's public schools. The most recent statistics paint a mixed picture of crime on school campuses.

In 1999, the California Department of Education (CDE) reported slight drops in total property crimes and crimes against persons, but increases in total drug and alcohol offenses in 1997-98 over the previous year. Specific crimes under these broad categories, however, went in both directions. For example, under the category of property crimes, burglary, graffiti, and arson were down, but vandalism and theft were up. Under drug and alcohol offenses, possession of drugs and possession of drugs/alcohol for sale were up, but possession of drug paraphernalia and actual sale of drugs/alcohol were down. (See Figure 29.)

Figure 29
Crime in California Public Schools



Behind the statistics were interesting bits of information. Although gun violence on campus has received widespread attention, the *Sacramento Bee* noted that the 12-percent increase in weapons confiscated at schools in 1997-98 was "fed largely by an increase in knives found on campus."²¹⁵

Despite California State Superintendent of Public Instruction Delaine Eastin's expressed optimism about the crime trends, her department admits that the statistics may be somewhat misleading because the state relies on self-reported data from local school districts. Reporting procedures vary from district to district so that some crimes reported in one district may not be reported in another. Thus, for example, the CDE estimates that, because of underreporting by districts, state figures capture only 78 percent of drug- and alcohol-related suspensions.²¹⁶

Eastin and California Attorney General Bill Lockyer have formed a task force to study ways to reduce school crime. No doubt the task force will come up with standard recommendations such as more conflict-resolution programs, more gang-prevention programs, and increased use of high-tech anti-crime devices. However, if California really wants to address the issue of school crime, it needs to get to the very heart of the matter—the behavioral code, moral or amoral, which guides the conduct of today's young people. If Californians are really serious about controlling crime on campus, moral development training and character education must be considered.

Scholars through the ages have warned about the effects of neglecting character education. Aristotle noted that the worst kind of person was not the evil person who lacked knowledge, but the intelligent person who lacked goodness. In more modern times, the late Ernest Boyer, president of the Carnegie Foundation for the Advancement of Teaching, said, "To have people who are well informed but not constrained by conscience is, conceivably, the most dangerous outcome of education possible." The Lenins and Maos, as well as the Littleton killers, are evidence of the truth of these observations.

A U.S. Department of Justice review of the academic literature found a link between juvenile delinquency and the moral views of young people:

[N]early all studies . . . have shown that delinquents tend to have lower moral reasoning than non-delinquents . . . [D]elinquency can be anticipated when children or adolescents are unable to see the perspective of others and lack the empathy for others circumstances. When conformity to rules of behavior for the sake of order in society is not accepted, when property is valued only in its possession, when personal relationships, even life itself are valued only for their utility, then delinquency behavior should not be a surprise. Moral or normative development at a more advanced level may be necessary for young people to move beyond utility to moral justification for correct behavior. The young persons must develop a sense of moral justification to have the ability and commitment to act accordingly when faced with temptation, economic deprivation or intense peer pressure.²¹⁷

Professor Kevin Ryan, founder of Boston University's Center for Advancement of Ethics and Character, has criticized the dominant trend in schools today where teachers merely act as facilitators so that children can create their own moral structures and hierarchies. Ryan says that good character "is about knowing the good, loving the good, and doing the good."²¹⁸ The key, of course, is determining what is the "good."

Moral relativists in the teaching profession and in our schools of education claim that determining an absolute "good" is impossible because what may be good for one person may be bad for another. Not so, says Gary Beckner, head of the California-headquartered Association of American Educators (AAE), a growing national teachers organization.

In a recent speech, Beckner observed that: "We can all agree that we must raise our academic standards. However, for our children's sake, indeed, for America's sake, we must at the same time raise our moral standards." Although modernists and liberals will scorn the suggestion, Beckner says that our moral standard must be based on religious principles such as those contained in the Ten Commandments and Christ's Sermon on the Mount: "In other words, our Judeo-Christian foundations—and that is what we suggest should be the underlying principles of any good character education program."

Religious principles are key because they transcend time, fashion, and individual opinion. Since they are based on the premise of a "supreme being" as the final authority, Beckner argues that religious principles answer the question of "'who says' I should or shouldn't do something, or what is right or wrong." "Without a final moral authority," says Beckner, "it is very difficult, if not impossible, to teach morality."

But can morality/character based on religious principles be taught in today's public schools? The U.S. Department of Education has said that schools may teach civic virtues, and the fact that some values are also held by religions doesn't make it unlawful for them to be taught in public schools. Still, in view of the anti-religion-in-the-public-schools litigation over the past decades, a religious-based character education program would seem a likely target for a lawsuit.

Given this reality, school-choice vouchers may be the ultimate answer. Writing in the *Wall Street Journal*, Alexander Volokh of the Reason Public Policy Institute notes:

Catholic schools didn't achieve their remarkably violence-free record by only accepting rich white kids or by expelling troublemakers. In the inner city, Catholic and public schools are demographically similar, and Catholic-school expulsion rates are quite low. They rely on contact with parents, assertive discipline and strong moral values.²¹⁹

Volokh emphasizes that Catholic schools' moral values are religious values. And because the government cannot teach religious values in the public schools, Volokh says public-private school-choice programs should be instituted.²²⁰

School-choice vouchers allow children to receive religious moral training, and they have passed constitutional muster. Earlier this year, the U.S. Supreme Court let stand a decision by the Wisconsin Supreme Court allowing poor parents in Milwaukee to use government-funded vouchers to send their children to private religious schools. Vouchers may, therefore, allow children to get the explicit religious morality/character training that they can't get at public schools.

The bottom line is that we ignore the moral development of young people at our peril. As Horace Mann warned: "For one man who has been ruined for want of intellect, hundreds have perished for want of morals. And yet, we go on bestowing at least a hundred times more care and cost in education of the intellect than in the cultivation of moral principles."

Conclusions and Recommendations

Overall, not much has changed in public education in California since the release of the first edition of this *Index* in 1997. Test scores are still shockingly low; graduation rates are low; teacher quality is low; teaching methodologies are questionable; and spending programs lack accountability.

There have been a few real reforms. Prop. 227 has overhauled the way in which limited-English-proficient children are taught. Also, the state has enacted excellent rigorous academic-content standards. The public-education establishment, however, fought mightily against these reforms. Even now, implementation of these reforms is being slowed and too often stymied by foot-dragging on the part of many education officials, administrators, and teachers. Further, instead of taking on the tough job of implementing these real reforms, state elected officials have focused their attention on enacting laws that make for better sound bites than sound policy.

As one of his first acts, Governor Gray Davis persuaded the state legislature to approve his four-part education-reform package. Despite good intentions, the details of the governor's reforms indicate that they will likely be insufficient to stop the downward slide of California public education.

For example, Davis's new Public School Accountability Act (PSAA), which sets out a series of rewards and sanctions for underperforming schools, affects only a limited number of such schools. In 1999-00, a total of 3,144 public schools in California were designated underperforming. However, only 430 of these schools, less than 15 percent, are subject to the provisions of the PSAA. Also, only 60 percent of the PSAA's Academic Performance Index, which determines schools' academic achievement, is based on student test scores. The other 40 percent is based on non-academic-achievement measures such as student attendance rates, staff attendance rates, and graduation rates.

Teacher peer review, another key part of Governor Davis's reform package, is meant to improve teacher quality by having selected teachers review the performance of other teachers. However, the details of the peer review program have been left up to school-district-level collective bargaining between school boards and the teacher unions. It is, therefore, unlikely that the peer-review programs will have the teeth necessary to get rid of bad teachers. Indeed, author and education researcher Dr. Myron Lieberman evaluated teacher peer-review programs across the country and found that these programs were universally weak and resulted in few firings of incompetent teachers.²²¹

If the governor's reforms are unlikely to work, what will? Just as competition from abroad forced the American auto industry to improve its products, so government-run public education needs competition from the private sector to improve the quality of its product. Such large-scale competition, however, can only become a reality through state-funded school-choice vouchers. When parents, especially low-income parents whose children are trapped in unsafe, low-performing public schools, are given vouchers that may be used to pay for tuition costs at private schools, public schools are forced to improve or shut down. As education policy analyst Nina Shokraii Rees notes, "When public schools are faced with the possibility of large student transfers, and a corresponding loss of funding, they have shown a willingness to make improvements both in how and what they teach."²²²

In Milwaukee, site of the nation's first school-choice voucher program, the city school board took decisive actions to improve public schools when faced with competition from voucher-receiving private schools. New high-quality public schools were opened in low-income areas. The district decentralized fiscal decision-making, allowing individual schools more control over their own budgets. Specialty programs in the arts and foreign languages were expanded. More public-school teachers were terminated for incompetence in 1996-97 than in the preceding 20 years. Poor-performing schools were closed. As a consequence of these and other actions, test scores of Milwaukee public school students improved. According to school board member John Gardner, the voucher program operating in Milwaukee "demonstrates that school choice improves both public education and government education called Milwaukee Public Schools."²²³ Academic research bears out Mr. Gardner's conclusion.

Harvard economist Caroline Minter Hoxby has found that, "A \$1,000 voucher would improve student performance across the board: both public and private school students would increase their educational attainment (about two years), test scores (about 10 percent), and wages (about 14 percent)."²²⁴ Professor Minter Hoxby notes that "public schools that face a disproportionate increase in competition because of the vouchers will disproportionately improve their productivity."²²⁵

In addition to improved public schools, voucher programs have improved the performance of voucher-receiving students. Studies led by Professor Paul Peterson, director of Harvard University's Program on Education Policy and Governance, of the Milwaukee and Cleveland voucher programs show that the math and reading scores of voucher-receiving students increased significantly.²²⁶ Similar increases in student achievement have occurred as a result of voucher-type programs in other countries, such as Britain.

Now that the U.S. Supreme Court has validated the constitutionality of the Milwaukee program, the door is open for other states to reap the benefits that competition will bring to public education and to all students. If Californians really want to change the dismal statistics contained in this *Index*, they must

summon the courage to consider systemic reforms like school-choice vouchers that will fundamentally change the way education services are delivered. The future of California's children depends on it.

About the Authors

Lance T. Izumi

Lance T. Izumi is Director of the Center for School Reform and Senior Fellow in California Studies at the Pacific Research Institute for Public Policy (PRI), a San Francisco-based public policy think tank. He was a Visiting Fellow in Education Studies at the Institute for Economic Affairs in London, England. He currently serves as a member of the California Postsecondary Education Commission.

Mr. Izumi has also served as a consultant on welfare reform to the California Department of Social Services, a consultant on juvenile crime to the Governor's Office of Criminal Justice Planning, and as co-chair of Governor Pete Wilson's competitiveness task force on juvenile justice education reform. Mr. Izumi is a columnist and contributing editor for the *California Journal*, the state's premier political monthly. His articles have been published in the *Notre Dame Journal of Law, Ethics and Public Policy*, *Harvard Asian American Policy Review*, *National Review*, *Wall Street Journal Europe*, *Sunday Times (of London)*, *Los Angeles Times*, *Investor's Business Daily*, *San Francisco Chronicle*, *Orange County Register*, *Sacramento Bee*, *Los Angeles Daily News*, *San Diego Union-Tribune*, and many other publications. Mr. Izumi is a regular contributor to the "Perspectives" opinion series on KQED-FM, the National Public Radio affiliate in San Francisco.

Prior to working for think tanks, Mr. Izumi served as chief speechwriter and director of writing and research for California Governor George Deukmejian. He also served in the Reagan administration as speechwriter to United States Attorney General Edwin Meese III.

Mr. Izumi received his master's degree in political science from the University of California at Davis and his juris doctorate from the University of Southern California Law Center. He received his bachelor's degree in economics and history from the University of California at Los Angeles.

K. Gwynne Coburn

Gwynne Coburn is a Public Policy Fellow in the Center for School Reform at the Pacific Research Institute. She also serves as a liaison between the Institute and the policy makers at the State Capitol. Previously, Ms. Coburn served as Assistant Deputy Cabinet Secretary to Governor Pete Wilson, where she worked with all state agencies, including the Office of Child Development and Education and the California Trade and Commerce Agency. Her articles have appeared in several publications including the *Fresno Bee*. In addition to her work at the Institute, Ms. Coburn is also active with the Sacramento Jr. League and is Vice President for Public Relations for her Toastmaster's Chapter. Ms. Coburn graduated with a Bachelor of Arts degree in English Literature and a minor in Spanish Studies from the University of California at San Diego.

End Notes

1 "Leaks in the Melting Pot," *Forbes*, 6 October 1997: 46.

2 "How California Compares," EdSource, November 1998: 2. In Los Angeles Unified School District, over 46 percent of the students are LEP. In the state as a whole, 45 percent of all LEP students are in grades K-3, which means that the expense created by such students will continue to grow in the coming years.

3 Based on the CDE's new-construction-needs formula, the classroom construction costs for the 1.4 million LEP students is \$21 billion. Of course, since these students didn't all arrive at the same time, the inflation-adjusted figure would be somewhat lower. However, the point still stands that immigration has been a key contributor to California's school facilities crisis.

4 McCarthy, Larry, "Informing the Local Bonds Debate," *Cal-Tax Digest*, December 1997: 2.

5 The \$400 million figure was calculated by Stephen Kroes, research director of the California Taxpayers Association.

6 The California Supreme Court, in the *Serrano* decision, said that overwhelming reliance on property taxes to fund local schools produced unequal funding and that there must be equalization of funding.

7 Although the actual test administered is the SAT-9, the test is commonly referred to as the STAR test.

8 "City schools improve in statewide reading, math tests," *Sacramento Bee*, 25 June 1999: A20.

9 "9th-Grade dip on Tests Baffles Educators," *Los Angeles Times*, 2 July 1999.

10 "Mixed grades for area schools," *Sacramento Bee*, 27 July 1999: A9.

11 *Ibid.* Ms. Astore disagrees with State Superintendent of Public Instruction Delaine Eastin who has attributed the drop in high-school reading scores to a mere glitch in the test itself. See *Ibid.*

12 "Small Gains on Stanford 9 Scores Cut Across All Levels of Language Ability," *Los Angeles Times*, 4 August 1999.

13 Cheri Person Yecke, "Virginia Education Report Card," The Family Foundation, 1996: 21.

14 See Paul E. Peterson, Jay P. Greene, and Jiangtao Du, "Effectiveness of School Choice: The Milwaukee Experiment," Program on Education Policy and Governance, Harvard University, March 1997 and Paul E. Peterson, William G. Howell, and Jay P. Greene, "An Evaluation of the Cleveland Voucher Program after Two Years," Program on Education Policy and Governance, Harvard University, June 1999.

15 Lawrence C. Stedman, "An Assessment of the Contemporary Debate over U.S. Achievement" in *Education Policy 1998*, Diane Ravitch, ed. (Washington, DC: Brookings Institution Press, 1998): 61.

16 Gretchen W. Rigol, "Common Sense About SAT Score Differences and Test Validity," The College Board, *Research Notes*, June 1997: 5.

17 *Ibid.*

18 *Ibid.*, 4.

19 Greg Perfetto, "Understanding the SAT scores of Hispanic students in the context of educational opportunities, performance and outcomes," The College Board, 23 September 1997: 3.

20 *Ibid.*, 2.

21 *Ibid.*, 3.

22 *Ibid.*

23 *Ibid.*, 4.

24 Clifford Adelman, "Answers in a Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment," U.S. Department of Education, June 1999.

25 University of California, Office of the President, Student Academic Services, "University of California Follow-up Analyses of the 1996 CPEC Eligibility Study," December 1997: 19.

26 *Ibid.*

27 *Ibid.*, 20.

28 *Ibid.*

29 *Ibid.*, 6.

30 David W. Murray, "The War Against Testing," *Commentary*, September 1998: 36.

31 *Ibid.*

32 *Ibid.*

33 *Ibid.*

34 *Ibid.*

35 *Ibid.*

36 *Ibid.*

37 *Ibid.*, 37.

38 *Ibid.*

39 *Ibid.*

40 *Ibid.*

41 California Postsecondary Education Commission, "Performance Indicators of Higher Education in California 1998," December 1998: 45.

42 *Ibid.*

43 *Ibid.*

44 University of California, Office of the President, Student Academic Services, *op. cit.*, 17.

45 Perfetto, *op. cit.*, 2.

46 "Teachers Told to Pump Up Grades," *San Francisco Chronicle*, 4 April 1998.

47 *Ibid.*

48 Richard P. Phelps, "Why Testing Experts Hate Testing," Fordham Foundation, January 1999: 9, citing National Association for College Admission Counseling, "Members Assess 1996 Recruitment Cycle," 2, 4.

49 Adelman, *op. cit.*

50 *Ibid.*

51 See Marie T. Mora, "The Effect of English Language Assistance Schooling Programs on the English Proficiency and Academic Achievement of Hispanic Students," Department of Economics and International Business, New Mexico State University, March 1998: 12. Using longitudinal data from 1988 National Educational Longitudinal Study, Ms. Mora, an economics professor at New Mexico State University, found that: "Hispanics who receive [English language assistance, i.e. bilingual education or English-as-a-second-language] at school after the eighth grade report significantly lower English fluency acquisition, are significantly more likely to drop

out of school, and make lower reading progress than their otherwise similar peers who receive [English immersion]. All of these outcomes hold constant the 'traditional' explanatory factors such as household social economic status, ethnicity, poor initial English skills, neighborhood ethnic concentration, immigration status, and gender."

52 Kevin Clark, "From Primary Language Instruction to English Immersion: How Five California Districts Made the Switch," READ Abstracts, June 1999: 16.

53 "English-only test scores up," *San Jose Mercury News*, 26 December 1999: A1.

54 *Ibid.*

55 *Ibid.*

56 *Ibid.*

57 Joanne Jacobs, "Test scores up, but spirits down," *San Jose Mercury News*, 30 December 1999: B11.

58 *Ibid.*

59 "Educators Working Around Prop. 227," *San Francisco Chronicle*, 31 July 1998: A1.

60 *Ibid.*

61 Stephen Moore, "Bilingual Betrayal," *National Review*, 12 October 1998: 23.

62 *Jack McLaughlin, et. al. v. State Board of Education, et. al.*, 75 Cal. App. 4th, 196 (1999). The Pacific Research Institute submitted, in conjunction with the Pacific Legal Foundation, an amicus brief that argued that the actions of the local school districts were not permissible under California law. The appellate court agreed with PRI's position.

63 Section 33050 of the California Education Code says that a school district or county may request the state Board of Education to waive all or part of any section of the Education Code. After passage of Prop. 227, the language of the initiative became part of the Education Code. Anticipating 227's approval, one week before the June 1998 election, the school districts of Oakland, Berkeley, and Hayward requested the state Board of Education to waive the new part of the Education Code which contained the language of Prop. 227. When the state Board of Education refused to grant a waiver, the school districts sued to force the Board to issue the waivers.

64 *McLaughlin, op. cit.*

65 *California Teachers Association, et. al. v. Gray Davis, et. al.*, 1999 WL 722558 (Gen. Dist. Cal.) September 1999.

66 *Ibid.*, 13.

67 Kevin Clark, "From Primary Language Instruction to English Immersion: How Five California Districts Made the Switch," READ Abstracts, June 1999: 7.

68 *Ibid.*

69 *Ibid.*, 9.

70 *Ibid.*

71 *Ibid.*, 20.

72 The formula for the "single-year" rate is: $(\text{Total Dropouts}/\text{Total Enrollment}) \times 100$.

73 The formula for the four-year "derived" rate is: $(1 - ((1 - (\text{Drop9}/\text{Enroll9})) \times (1 - (\text{Drop10}/\text{Enroll10})) \times (1 - (\text{Drop11}/\text{Enroll11})) \times (1 - (\text{Drop12}/\text{Enroll12})))) \times 100$.

74 "State's Graduation Rate Is Among Worst in U.S.," *Los Angeles Times*, 8 June 1999: A1.

75 *Ibid.*

76 The graduation rate formula is: $(1 - (\text{Grads this year}/\text{Enroll9 four years ago})) \times 100$.

77 Richard Fossey and Jim Garvin, "Cooking the Books on Dropout Rate," *Education Week*, 22 February 1995: 36.

78 "Half get diplomas," *Los Angeles Daily News*, 8 June 1999. Alan Bonsteel, a medical doctor and author, was instrumental in forcing the CDE to reexamine its dropout-rate methodology. Dr. Bonsteel, Dr. Carlos Bonilla, and the author of this publication collaborated on a proposal seeking reform of the dropout-rate calculations. Dr. Bonsteel, Dr. Bonilla, and the author were invited to testify at a 1998 meeting of the State Board of Education which ended in the CDE agreeing to revamp its methodology.

79 "Bad data hid poor graduation rates," *Sacramento Bee*, 8 June 1999: A1.

80 "Half get diplomas," *Los Angeles Daily News*, 8 June 1999.

81 *Ibid.*

82 *Ibid.*

83 *Ibid.*

84 See, for example, Leslie DeMersseman, "High school report left out essential data," *Sacramento Bee*, 23 July 1999.

85 Stephen V. Cameron and James J. Heckman, "The nonequivalence of high school equivalents," *Journal of Labor Economics*, 1993, 11(1) Part 1: 18.

86 *Ibid.*

87 *Ibid.*, 43.

88 *Ibid.*, 44.

89 *Ibid.*, 31.

90 *Ibid.*, 43.

91 David Boesel, Nabeel Alsalam, and Thomas M. Smith, "Educational and Labor Market Performance of GED Recipients," U.S. Department of Education, February 1998.

92 *Ibid.*

93 *Ibid.*

94 *Ibid.*

95 "Fresno State drops students over remedial requirement," *Fresno Bee*, 30 August 1999.

96 *Ibid.*

97 Clifford Adelman, "Answers in a Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment," U.S. Department of Education, June 1999.

98 See "Hate Crimes Rose 15% in L.A. County Schools," *Los Angeles Times*, 5 May 1999.

99 Council of Chief State School Officers, *State Indicators of Science and Math Education 1997*: 27.

100 *Ibid.*

101 *Ibid.*

102 *Ibid.*

103 *Ibid.*, 26.

104 Adelman, *op. cit.*

105 *Ibid.*, 32.

106 *Ibid.*

107 *Ibid.*

108 *Ibid.*, 39.

109 California Postsecondary Education Commission, "Student Profiles, 1999," December 1999: 1-31.

110 University of California, *op. cit.*, 10-11.

111 *Ibid.*, 47.

112 "Stanford 9 a Test of Nerves as Well as Achievement," *Los Angeles Times*, 6 April 1999.

113 Adelman, *op. cit.*

114 *Ibid.*

115 *Ibid.*

116 *Ibid.*

117 *Ibid.*

118 Eric A. Hanushek, "The Evidence on Class Size," W. Allen Wallis Institute of Political Economy, University of Rochester, February 1998: v.

119 Tennessee uses a customized version of McGraw-Hill's Terra Nova assessment device to test all students in grades 3-8. The testing program is called the Tennessee Comprehensive Assessment Program (TCAP). Annual reports on aggregate student achievement gains produced by each Tennessee teacher, school, and school system are produced by the Tennessee Value-Added Assessment System (TVAAS). The reports for school systems are disaggregated by school and are graded for the five TCAP test subjects (math, science, reading, language, and social studies). The reports show achievement gains in scale score points and in comparisons with national, state, and district averages. The reports for individual teachers aggregate the gains earned by all students for which a teacher was responsible and compare them to national, state, and local averages. Value-added assessment is a method of education data analysis that summarizes annual gains in student achievement. When this method of analysis, technically known as Henderson's "mixed model," is applied to the aggregate scores of students taught by a given teacher, however, it becomes an indicator of teacher effectiveness. This type of analysis produces one of the best linear unbiased estimates of the influence of teachers, schools, and school systems on annual student achievement gains. Teacher averages are classified as "above the norm," "below the norm," or "not detectably different" from the norm. For an excellent summary of the Tennessee system, see J.E. Stone, "Value-Added Assessment: An Accountability Revolution" in *Better Teachers, Better Schools*, Marci Kanstoroom and Chester E. Finn, Jr., ed. (Washington, DC: Thomas B. Fordham Foundation, July 1999): 239-49.

120 William L. Sanders and Joan C. Rivers, "Cumulative and Residual Effects of Teachers on Future Student Academic Achievement," (Available from UTVARC, 225 Morgan Hall, P.O.Box 1071, Knoxville, TN 37901-1071), 1996: 9.

121 Kati Haycock, "Good Teaching Matters . . . A Lot," *Thinking K-16*, Summer 1998: 4.

122 *Ibid.*

123 Sanders and Rivers, *op. cit.*, 12.

124 *Ibid.*, 9.

125 Hanushek, *op. cit.*, 35.

126 Haycock, *op. cit.*, 5.

127 *Ibid.*, 6.

- 128 Ronald Ferguson, "Teachers' Perceptions and the Black-White Scoring Gap" in *The Black-White Test Score Gap*, Christopher Jenks and Meredith Phillips, ed. (Washington, DC: Brookings Institution Press, 1998).
- 129 Ronald F. Ferguson and Helen F. Ladd, "How and Why Money Matters: An Analysis of Alabama Schools," in *Holding Schools Accountable: Performance Based Reform in Education* (Washington, DC: Brookings Institution, 1996).
- 130 *Ibid.*, 278.
- 131 Dan D. Goldhaber and Dominic J. Brewer, "Evaluating the Effect of Teacher Degree Level on Educational Performance," *Developments in School Finance*, 1996. A 1993 study by D.H. Monk, also using National Longitudinal data, found that each mathematics course taken by math teachers above the average for teachers translates into two to four percent higher student achievement. D.H. Monk, *Subject area preparation of secondary mathematics and science teachers and student achievement* (Ithaca, NY: Cornell University, Department of Education, 1993).
- 132 *Ibid.*, 199.
- 133 Dan D. Goldhaber and Dominic J. Brewer, "Teacher Licensing and Student Achievement" in *Better Teachers, Better Schools*, Marci Kanstoroom and Chester E. Finn, Jr. (Washington, DC: Thomas B. Fordham Foundation, July 1999): 94.
- 134 Council of Chief State School Officers, "State Indicators of Science and Mathematics Education," 1997: 60.
- 135 *Ibid.*
- 136 *Ibid.*
- 137 Haycock, *op. cit.*, 8.
- 138 Eugene W. Hickok and Michael B. Poliakoff, "Raising the Bar for Pennsylvania's Teachers" in *Better Teachers, Better Schools*, Marci Kanstoroom and Chester E. Finn, Jr. (Washington, DC: Thomas B. Fordham Foundation, July 1999): 134.
- 139 *Ibid.*
- 140 *Ibid.*, 136.
- 141 *Ibid.*
- 142 *Ibid.*
- 143 EdSource, "An Update: How California Recruits, Prepares, and Assists New Teachers," April 1999: 4.
- 144 EdSource, "Strengthening Teacher Quality in California," April 1999: 10. Another study found that students in California whose teachers attended curriculum- and content-centered professional development courses performed better than students whose teachers attended professional-development courses centered on pedagogy. David K. Cohen and Heather C. Hill, "Instructional Policy and Classroom Performance: The Mathematics Reform in California," University of Pennsylvania Consortium for Policy Research in Education (CPRE) Policy Briefs, January 1998.
- 145 Goldhaber and Brewer, *op. cit.*, 94.
- 146 Council of Chief State School Officers, *op. cit.*, 55.
- 147 *Ibid.*, 57.
- 148 *Ibid.*, 56.
- 149 Hickok and Poliakoff, *op. cit.*, 135.
- 150 Tom Loveless, "The Use and Misuse of Research in Educational Reform" in *Education Policy 1998*, Diane Ravitch, ed. (Washington, DC: Brookings Institution Press, 1998): 285-286.
- 151 *Ibid.*, 286.
- 152 *Ibid.*, 287.

- 153 *Ibid.*
- 154 California Department of Education, *English-Language Arts Framework for California Public Schools: Kindergarten through Grade Twelve* (Sacramento, CA, 1987): 2.
- 155 *Ibid.*, 16.
- 156 California Department of Education, *Mathematics Framework for California Public Schools: Kindergarten through Grade Twelve* (Sacramento, CA, 1992): 41.
- 157 Tom Loveless, *op. cit.*, 286.
- 158 Bonnie Grossen, "What is Wrong with American Education" in *What's Gone Wrong in America's Classrooms*, Williamson M. Evers, ed. (Stanford, CA: Hoover Institution Press, 1998): 30.
- 159 "A Unique School or Out of Step?," *Los Angeles Times*, 2 September 1999: A1.
- 160 *Ibid.*
- 161 *Ibid.*
- 162 *Ibid.* What is the response of Columbus school officials to this failure? Not surprisingly, it is to ask for still more money. The school will get a \$75,000 grant for more after-school instruction and is applying for a \$50,000 state grant for outside experts to come up with an improvement strategy.
- 163 *Ibid.*
- 164 *Ibid.*
- 165 Lynne Cheney, "Effective Education Squelched," *Wall Street Journal*, 12 May 1999.
- 166 Rebecca Herman, "Approaches to Schoolwide Reform: Taking a Critical Look," American Institutes for Research, 1999.
- 167 *Ibid.*
- 168 *Ibid.*
- 169 G.L. Adams and Siegfried Engelmann, *Research on direct instruction: 20 years beyond DISTAR* (Seattle, WA: Educational Achievement Systems, 1996).
- 170 Bonnie Grossen, *op. cit.*, 27.
- 171 *Ibid.*, 28.
- 172 Rebecca Herman, *op. cit.*
- 173 Bonnie Grossen, *op. cit.*, 28.
- 174 A transcript of the 20/20 segment is available from Pacific Research Institute. Contact Lance Izumi.
- 175 Hanushek, *op.cit.*
- 176 *Ibid.*, 3-6.
- 177 *Ibid.*, 25.
- 178 *Ibid.*, 18-19.
- 179 *Ibid.*, 26-33.
- 180 *Ibid.*, 34.

- 181 *Ibid.*
- 182 *Ibid.*, i.
- 183 CSR Research Consortium, "Class Size Reduction in California 1996-98: Early Findings Signal Promise and Concern," June 1999: 18.
- 184 *Ibid.*, 19.
- 185 *Ibid.*
- 186 *Ibid.*
- 187 *Ibid.* Class-size reduction had only one-eighth to one-tenth the effect on student achievement as the other variables.
- 188 *Ibid.*, 20.
- 189 *Ibid.*
- 190 *Ibid.*, 19.
- 191 *Ibid.*
- 192 Edward P. Lazear, "Smaller Class Size Isn't a Magic Bullet," *Los Angeles Times*, 9 September 1999.
- 193 *Ibid.*
- 194 *Ibid.*
- 195 Hanushek, *op. cit.*, 35.
- 196 CSR Research Consortium, *op. cit.*, 9.
- 197 *Ibid.*, 10.
- 198 *Ibid.*, 11.
- 199 Hanushek, *op. cit.*, 35.
- 200 CSR Research Consortium, *op. cit.*, 15.
- 201 *Ibid.*
- 202 For a useful summary of the Prop. 98 spending formulae, see Legislative Analyst's Office, "Analysis of the 1998-99 Budget Bill," Sacramento, CA, February 1998: E-8.
- 203 The Little Hoover Commission, "Costs and Casualties of K-12 Education in California," Sacramento, CA, June 1991: 47-48.
- 204 Legislative Analyst's Office, "Analysis of the 1997-98 Budget Bill," Sacramento, CA, February 1997: E-70.
- 205 *Ibid.*, E-69.
- 206 Legislative Analyst's Office, "Overview of the 1998-99 May Revision," Sacramento, CA, 18 May 1998: 12.
- 207 Legislative Analyst's Office, "Analysis of the 1997-98 Budget Bill," *op. cit.*, E-71.
- 208 *Ibid.*, E-72-80.

209 "Governor Signs School-Friendly Budget," *San Francisco Chronicle*, 30 June 1999: A1.

210 John S. Barry and Rea S. Hederman, Jr., "Report Card on American Education: A State-by-State Analysis 1976-1996," American Legislative Exchange Council, December 1998: 48-49.

211 U.S. Department of Education, National Center for Education Statistics (NCES), *Digest of Education Statistics 1998*, Washington, DC, March 1999: 183.

212 Eric Hanushek, "Making America's Schools Work," *Brookings Review*, Fall 1994.

213 Eric Hanushek, "Measuring Investment in Education," *Journal of Economic Perspectives*, Fall 1996: 9.

214 The per-student spending calculations are based upon the districts' requested 1999-00 budgets and the districts' annual average daily attendance (ADA). Numbers necessary for the calculations came from budget materials supplied by the school districts themselves. Where the materials fell short of providing all the data needed to complete the calculations, district personnel provided the missing data verbally via telephone. In doing his calculations, Mr. Brodt added up revenues and expenditures budgeted by the district, and subtracted any revenues and expenses borne by the district for people other than K-12 students. These reductions typically involved revenues and expenditures of adult education and pre-school child development services, and the portion of vocational education devoted toward serving adults rather than high school students. Also, to adjust for regional differences in responsibility between the districts and to make the district numbers more comparable to the state average, two further additions to the calculation were necessary: 1) an estimate of county budgeted and administered vocational programs for the districts' high school students and, 2) a prorata share of the state education budget devoted to expenses that were not part of the districts' budgets. These budget items included state administrative costs, interest expense on state bonds, supplemental funding of teachers' retirement, funding on the Commission for Teacher Certification, and special programs and schools directly administered by the state. The eventual budget sum was divided by the K-12 average ADA. The ADA does not include students in adult education and vocational programs, special education children whose education is budgeted and administered by the county office of education, and some other minor reductions.

215 "School crime down, but drug use up," *Sacramento Bee*, 24 February 1999: B1.

216 *Ibid.*, B4.

217 Kevin N. Wright and Karen E. Wright, "Family Life and Delinquency and Crime: A Policymaker's Guide to the Literature," U.S. Department of Justice, 1992.

218 Mary Beth Klee, "Character Doesn't Just Happen," *Education Link*, Summer 1999: 2, reviewing Kevin Ryan and Karen Bohlin, *Building Character in Schools: Practical Ways to Bring Moral Instruction to Life*, (Josey-Bass Publishers, 1999).

219 Alexander Volokh, "School Choice Could Alleviate Violence," *Wall Street Journal*, 29 April 1999.

220 *Ibid.*

221 See Myron Lieberman, *Teachers Evaluating Teachers* (New Brunswick, CT: Transaction Publishers, 1998).

222 Nina Shokraii Rees, "Pubic School Benefits of Private School Vouchers," *Policy Review*, January/February 1999:16.

223 John Gardner, "How School Choice Helps Public Education," unpublished manuscript, 1997: 1. Gardner notes that during the brief period when an adverse ruling by a lower state court judge put the Milwaukee school-choice program on hold, the Milwaukee Teachers Association immediately withdrew its support for many of the public-school reforms initiated by the Milwaukee school board. A copy of Mr. Gardner's article may be obtained from Lance Izumi.

224 Caroline Minter Hoxby, "The Effects of Private School Choice Vouchers on Schools and Students" in *Holding Schools Accountable: Performance Based Reform in Education*, Helen F. Ladd, ed. (Washington, DC: The Brookings Institution, 1996): 201.

225 *Ibid.*

226 See Paul E. Peterson, Jay P. Greene, and Jiangtao Du, "Effectiveness of School Choice: The Milwaukee Experiment," Program on Education Policy and Governance, Harvard University, March 1997 and Paul E. Peterson, William G. Howell, and Jay P. Greene, "An Evaluation of the Cleveland Voucher Program after Two Years," Program on Education Policy and Governance, Harvard University, June 1999.

