Crucial Issues in California Education 2000:

Are the Reform Pieces Fitting Together?

Policy Analysis for California Education PACE

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Preface and Acknowledgments

Crucial Issues in California Education 2000 is a successor to *Conditions of Education*, a PACE publication since 1984. *Conditions* combined up-to-date data and ongoing trends in a wide variety of indicators relevant to state education policy. In recent years, education in California has become more complex, undergoing both strident criticism and renewed support. To present a more analytical overview of California education, this year PACE has asked experts around the state to contribute chapters based on in-depth research projects. Their contributions allow PACE to offer the latest data analysis around a wider variety of issues, while continuing to provide overall strategic recommendations. This volume provides a unique function in policy analysis because it brings together numerous reports on components of California education in one source. Moreover, the scope of *Crucial Issues* is the largest in the history of the series, spanning child care to universities.

We have received generous financial support from several foundations. First, PACE could not survive without core support and advocacy from Ray Bacchetti at the William and Flora Hewlett Foundation. The Stuart Foundation has been helpful since 1998 when Jane Henderson came to an early planning meeting. Since then, Ted Lobman has been a strong supporter. Lisa Carlos and Joan Herman also attended early planning efforts. Robert Shireman at the James Irvine Foundation provided funding for the newly structured volume. The work reported in Chapter 7 was also supported in part under the Educational Research and Development Centers Program, PR/Award Number R305B60002, as administered by the Office of Educational Research and Improvement, U.S. Department of Education. The study described in Chapter 9 was commissioned by Stanford University's Bridge Project: Strengthening K-16 Transition Policies, a national study funded by the Pew Charitable Trusts and the U.S. Department of Education's Office of Educational Research and Improvement.

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Finally, we would like to show appreciation for our PACE team, especially Terry Alter, Regina Burley, Robert Dillman, and Diana Smith.

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Chapter 1

California's Ambitious Education Reform Agenda: Will It Energize Schools and Teachers?

David Ruenzel
PACE

An Unprecedented Surge in Reform Ideas

California's schools may face scarcities of many key ingredients, from qualified teachers to modern classrooms. But there is no shortage of ideas when it comes to how policymakers are eagerly searching for ways to fix the state's troubled public schools.

The team that crafted this volume, *Crucial Issues in California Education 2000: Are the Reform Pieces Fitting Together?*, faced a massive challenge simply keeping up with the reforms being legislated in Sacramento and the ways in which local districts have struggled to implement them. While the new mandates forged by policymakers have been well-intentioned, they threaten in number and complexity to overwhelm educators.

California's educators have gone through several generations of school reform. The 1960s brought early categorical programs aimed at serving previously underserved groups, from children with weak reading skills to non-English speaking youngsters. In 1983, more than 40 separate reforms were approved by the legislature. The 1990s brought new initiatives in the school-choice arena, such as charter schools, a new state testing program, a mandated attempt to end social promotion of children, and radical reductions in class sizes. Bilingual teaching methods were outlawed unless a critical mass of local parents demanded that they continue.

But the new Sacramento-led accountability system, successfully pushed through the legislature by Gray Davis during his initial months as governor, is unprecedented in a number of ways. Aiming "to restore the greatness of California education" in the governor's words, Sacramento for the first time is tracking which schools effectively raise children's learning curves over time, and which schools fail to do so. Carrots or sticks are allocated by Sacramento. Curriculum guidelines and a new statewide exam, only partially aligned with what teachers are expected to teach, are also crafted in the state capital. The legislature has now told all school districts to implement a peer evaluation process for all teachers. Districts continue to struggle with reducing class sizes, finding enough qualified teachers, as well as ending social promotion and creating new summer school programs for those who flunk a grade level.

Yet only in selected cases do schools and teachers receive additional resources to push hard on all these reform fronts. From a policy perspective, the governance of public education continues to steadily move to Sacramento and away from local school boards. The expectations and mandates placed on these local boards, district staff, principals, and classroom teachers are rising dramatically. But Sacramento's political will—as well as the voters'—to provide additional resources to get the job done remains constrained. In March 2000 a majority of voters said they did not want to make it easier for local educators to sell bonds to renovate dilapidated school facilities.

In this volume, the PACE team offers mixed observations about this flurry of reform activity. On one hand, we feel good about the civic debate that has invigorated California for the past decade and a half. The expressed concerns of parents, civic leaders, employers, and editorial boards has moved policymakers—at both state and local levels—to enact a breathtaking array of policy initiatives.

On the other hand, the PACE team wonders if these myriad reforms will add up to a coherent set of institutional changes. That is, are we weaving together a patchwork quilt that, while colorful, fails to hang together over time? Several of the chapters that follow detail pieces of the reform puzzle, then ask whether the pieces are fitting together.

A second set of questions must be put on the table: How do these reforms deliver more highly qualified and skillful teachers, and how do they motivate the state's teachers to innovate and implement more effective teaching practices? In other words, do these puzzle pieces of reform fit together into a coherent " theory of action," whereby policies emanating from Sacramento will energize teachers in the school down the street?

From the outset we focus on the question of policy coherence. The chapters that follow push forward on the issues of whether teachers will be moved to improve and whether mandates without additional resources will really be able to bring forth more stimulating classrooms and pedagogy.

Do the Puzzle Pieces Comprise Coherent Reform?

If the current California school reform movement is in some ways a departure from earlier ones—particularly in terms of scale—it does appear eerily similar in one less than desirable way. While many of the reforms are sensible enough when considered as isolated components, there is the threat that they will never cohere into the program of *systemic* reform that is truly needed to improve student achievement for *all* California students. Fragmentation has long hampered the state's education system, and it may do so for a long time to come.

Of course, policymakers have long been aware of the need for systemic reform and have made serious efforts to push it forward. Responding to the limitations of single components of reform such as standards and site-based management to improve student achievement, policymakers and educators in many states, including California, began to create during the 1990s a reform agenda that takes into account the need to move on several fronts

at once. In California, many local districts, sometimes acting on their own initiative, moved toward systemic, coherent reforms. They realized that improving curriculum, establishing new roles for teachers, and developing school-level structures to support teaching and learning were each pieces of a solution that had to be addressed concurrently, not isolated topics to be sequentially cycled through policy mechanisms.

On the state level, proponents for what has become known as standards-based reform proposed four key *interrelated* reforms aimed at fostering student mastery of more rigorous, challenging academic content:

- establishing challenging academic standards for what all students should know and be able to do;
- aligning policies to these standards, such as testing, teacher certification, textbook selection, and professional development;
- restructuring the school governance system so that schools and districts are delegated the responsibility for developing specific instructional approaches that meet state academic standards;
- developing accountability mechanisms so that districts, schools, teachers, and students will all be held responsible for improved academic achievement.

Although many California business executives and educators have espoused this model of systemic reform, it has so far been more successfully implemented in other states such as Connecticut and Kentucky. In fact, in some ways it can be said that California has jumped ahead on implementing—somewhat impetuously, in PACE's view—the accountability component before the alignment and governance issues have been adequately dealt with. Consequently, California is currently saddled with a high stakes accountability system based on a single measure, the Stanford 9—a standardized test that has little correlation with the state's academic standards.

Some of the state's difficulty in fostering systemic reform lies, as the following chapters make clear, at the margins of, and even outside of the direct purview of, K-12 policy. The pupil population, for instance, continues to grow at over 80,000 a year, making it difficult for educators to focus on quality systemic reform while trying to accommodate such large numbers. Heightening the challenge for educators is the fact that many of these children live and attend school under very difficult circumstances. Statewide, the share of children living within impoverished families has climbed 24 percent since the late 1970s, now standing at one million youngsters in the state. Over the same period reading scores have dropped to the same dismal levels observed in Alabama and Mississippi, demonstrating that poverty played a major role in this drop. Clearly, as Chapter Two argues, the state must work not only at improving education policy, but at improving the living conditions of California's poorest families and children.

The surge in enrollment, combined with class-size reduction, has also resulted in a serious shortage of high quality teachers; in some California school districts—especially those serving the neediest students—over 30 percent of the faculty are serving on emergency credentials. Such inexperienced, unprepared teachers often have a difficult time surviving from one day to the next, much less trying to implement reform policies they scarcely understand.

Still, many of the obstacles to systemic K-12 reform are as internal as they are external; PACE believes that policymakers simply have not done all they need to do in creating a truly coherent approach to school reform. Systemic school reform, for instance, is supposed to be based upon assessments aligned to rigorous academic standards, something California is far from accomplishing. As noted above, the standardized test that California students are required to take – the Stanford 9 – is not at all aligned to the state's standards, although augmented test items from the standards are being added each year. Still, some educators wonder out loud if the assessments will ever be fully aligned to the standards. Indeed, the new accountability system puts educators in the paradoxical and scarcely tenable position of being judged on Stanford 9 scores that don't reflect the curriculum students are supposed to be learning.

Politically, things began to look promising in 1999 in terms of improving the state's fractured state education governance pattern and aligning the system. Governor Davis took charge of the executive branch machinery, while his Democratic party was firmly in control of both legislative branches. This would have seemed to be a great opportunity to circumvent the incoherence and implementation failures that confronted the Wilson administration; after all, Wilson faced a hostile Democratic legislature and had a fractious relationship with the Democratic State Superintendent of Schools, Delaine Eastin.

However, PACE does not feel that a true plan of policy alignment and coherence has yet emerged from the state despite the many initiatives it has launched. California state policy, as this edition of *Crucial Issues* makes clear, still has many obstacles to overcome in developing an education policy that sets clear objectives for schools and supports those schools with sufficient resources and autonomy.

A Summary of the Chapters

Chapter Two, "Early Education and Family Poverty," argues that California K-12 education reform, even if it does achieve coherence, will be of limited effectiveness unless issues pertaining to family poverty and inadequate early education are more fully addressed. When poor children enter school they are two to three years behind their more affluent peers in almost every measure, which does not bode well for a state in which 26 percent of all children live in poverty. Preschool programs, the authors demonstrate, can make a significant difference in closing the gap, but in California they are hampered by uneven quality, varying affordability, and a weak coordination system that has different state agencies administering different programs. Even when good preschools and child care are available, parents find it difficult to get the necessary information about them. The authors offer recommendations for improved early education, including the establishment of links to K-12 reform.

Chapter Three, "The Schooling of English Learners," ponders the question of how we can better educate the 25 percent of California students who are English language learners. Complicating the challenge, the authors demonstrate, are the high poverty rates among the families of English language learners, the still uncertain effects of Proposition 227 (the

1998 English-only initiative), the pressures of high-stakes testing, and—most important of all—the shortage of high-quality teachers. Only one-third of English language learners had certified teachers in 1998, partially on account of K-3 class-size reduction that siphoned the most qualified teachers from schools serving poor students to those serving the most affluent. Until an adequate number of well-trained teachers can be secured, the education of English language learners will be in jeopardy.

Chapter Four, "School Finance," argues for the reconsideration of a state education funding system that does not, at the present time, have a strong connection to California's educational objectives. Categoricals now consume 39 percent of state education funding, which means that many of the dollars going to schools are already accounted for before they even reach the schoolhouse door. While the authors don't suggest that categorical funding should be eliminated— that is neither politically feasible nor desirable on account of equity considerations—they worry about the constraints an ever-expanding number of categoricals place on schools that need flexibility in order to improve student learning. The authors also discuss the need for policymakers and legislators to define what "adequate" education funding means in a state that increasingly demands it but yet cannot say how additional resources would be aligned with educational goals.

Chapter Five, "Governance and Accountability," demonstrates how local school districts and boards have lost a significant amount of power over the last thirty years, as much of the decision-making regarding school accountability, curriculum, and finance now rests with the state. Yet despite this centralization and the increasing power of the governor, the California education system sometimes appears headless, as "no single entity or individual has the authority to set the course for education reform." The California public education governance system is deeply splintered with the governor, legislature, state board, California Department of Education, and other entities having influence over different pieces of education policy. The authors argue that such governmental fragmentation tends to undermine efforts to put forth a coherent program of reform.

Chapter Six, "Teacher Quality," analyzes the paradox California finds itself in. On one hand, the state has made important strides in important areas such as setting professional standards for teaching and expanding mentoring programs for beginning teachers; on the other hand, California continues to be plagued by an escalating shortage that has placed thousands of emergency-permit teachers in the schools serving our poorest, neediest students. Qualified math and science teachers are particularly difficult to find, as public education cannot compete with the salaries in a booming high tech economy. While the authors see no "quick fix," they do offer a number of long-range strategies to improve teacher recruiting, professional development, and overall quality.

Chapter Seven, "Student Assessment and Student Achievement in the California Public School System," portrays an assessment system that is still evolving, albeit tentatively, to a standards-based system. The current high-stakes assessment, the normative Stanford 9, is not only not aligned to the state's academic content standards, but provides a very limited "snapshot" of student achievement in California.

While the Stanford 9 scores generally show California students achieving satisfactorily, scores from other measures, such as the highly regarded National Assessment of Educational Progress (NAEP) are still substantially below average. The authors argue for an assessment system that weighs more than a single measure, cautioning against an overvaluation of standardized test scores that generally do not reflect what we most want students to know and be able to do.

Chapter Eight, "Connecting California's K-12 and Higher Education Systems," explores how deep disjunctures between the two systems send confusing signals to students preparing for post-secondary education. As matters currently stand, California students have to take many hours of standardized tests that count for little when they apply to college. And, once accepted to college, they have to take placement exams that are not aligned from one institution to the next, much less to the California high school curriculum. The author recommends the establishment of a K-16 policymaking body that can build bridges between the two systems.

Chapter Nine, "Alignment Among Secondary and Post-Secondary Assessments in California," examines the alignments and misalignments in six different types of commonly used tests. Some math tests, for instance, emphasize contextual problem-solving, whereas others emphasize abstract procedures. Some reading tests emphasize the ability to draw inferences, whereas others ask for deeper analysis. Some of the misalignments between tests are inevitable, the authors argue, as one cannot expect a basic-skills test to emphasize the same skills as a college entrance examination. Nevertheless, the authors draw on research to suggest that many of the misalignments are confusing and harmful to students who receive mixed signals regarding what kinds of skills and knowledge are of primary importance.

The Need for Coherence and Capacity Building

While this edition of *Crucial Issues* demonstrates that many of the recent reform efforts are fragmented and incomplete, we at PACE don't want to sound unduly pessimistic. After all, considerable progress has been made over the last three years. Standards are complete and there is at least some movement toward the alignment of other policies. Furthermore, there is some evidence that the culture of teaching and learning in California is beginning to change. Teachers and schools are focusing more intensely on student achievement, and increasing numbers of students are beginning to understand and believe that how they perform in school will have consequences for their lives beyond school.

Still, we believe that more steps must be taken in the next few years—steps that will foster improved student achievement without overburdening school and school districts with more state policy directives. The shift must be made from creating new reforms to helping schools and school districts effectively implement the ones already in place. Most important of all, in our view, is the need for more capacity building: There is a profound mismatch between the demands that are being placed on teachers and students and the resources they

have to meet these demands. California policymakers are well aware of the need for such things as more counselors, better professional development, increased teacher pay, and high-quality teachers for our poorest schools, but will find it difficult to make up quickly for the many years of declining educational resources.

We urge, then, that policymakers concentrate on bringing coherence to existing reforms and building the capacity of schools to implement them rather than on adding new ones to an already very full slate. After the reform frenzy of the last few years educators need breathing space, not an onslaught of new initiatives. California's schools must now be given the time, opportunity, and resources they need to succeed.

Chapter 2

Early Education and Family Poverty

Elizabeth Burr and Bruce Fuller
PACE

Why Should Family Poverty Concern All Californians?

Recent debates around accountability in the K-12 system too often ignore the fact that learning begins long before children enter kindergarten. Research demonstrates that children with insufficient early learning opportunities are likely to start school with serious deficits in knowledge and basic skills that are difficult to overcome in later years. Consider these facts:

- Black six year olds (who are disproportionately poor) read at the level of white five year-olds.[1]
- Half of the variability in high school seniors' test scores is due to differences that were already apparent in first grade.
- About one-third of young children do not attend a formal preschool program, largely because of a shortage of services.[2]

While poverty is the strongest predictor of school achievement, and the central reason children fall behind at an extremely early age, quality child care and preschool can mitigate some of its effects and prepare youngsters for kindergarten. In Texas, where an early reading initiative is in place, the persistent gap between minorities and whites has closed remarkably. Students' test scores in Georgia also have risen since an early literacy program was launched.

As effective as such programs can be, the ability to find and pay for quality preschool poses a serious problem for many families. This is particularly true in California, where one in four children live in poverty—a higher rate than in all but seven states.[3] This leads to a couple of critical questions this chapter will strive to answer: In a time of unparalleled prosperity, how can California leave so many children behind? What policies could help reduce poverty and raise school performance?

A Widening Income Gap

Poverty is commonly perceived as a welfare problem, but increasing numbers of working families are struggling to pay for housing, health care and child care. Indeed, with the high cost of living in many California communities, even some middle-class families have trouble making ends meet. Therefore, efforts to end the welfare system will do nothing unless they include strategies to end child poverty.

Instead of benefiting all families, the booming economy has exacerbated an already trou-

bling income gap. Between 1969 and 1994, income inequality rose more sharply in California than in the nation as a whole—a trend that continues.[4] The gap between the top and bottom fifth of California families has grown by 77 percent since the 70s. From the mid-1980s to the mid-1990s, that gap widened faster than in all but four states, while the gap between the rich and the middle class increased faster than in all but three states.[5] The middle class has been squeezed, shouldering a heavy tax burden and benefiting from few of the public programs aimed at lower-income families.

Unequal incomes lead to unequal opportunity for families who are struggling harder than ever to provide for their children. Increasingly, low-income working families are forced to choose between buying food or going to the doctor.

Due partly to rising income inequality, child poverty in California has been climbing at an alarming rate, from 20.8 percent in 1987 to 26 percent in 1999.[6] This means that nearly 2.5 million children are poor, living in households earning $16,450 or less for a family of four. Many of those 2.5 million live with adults who lack adult self-sufficiency; live with adults who are self-sufficient but lack the additional income to also support their children; or live in poverty because of the demographic structure of their household. Together with New York and Texas, California has a higher rate of child poverty than the nation as a whole. The growing income disparity stems in part from California's large immigrant population and its high numbers of children with single mothers who have little education. Family structure and race are predictors of poverty. Blacks and Latinos are more likely than whites to be poor. Nationwide, children who live with only one parent are more likely to be poor than those who live with two parents.

The long-term effects of poverty are grave. Poor children are also more likely than kids from affluent or middle class families to experi-

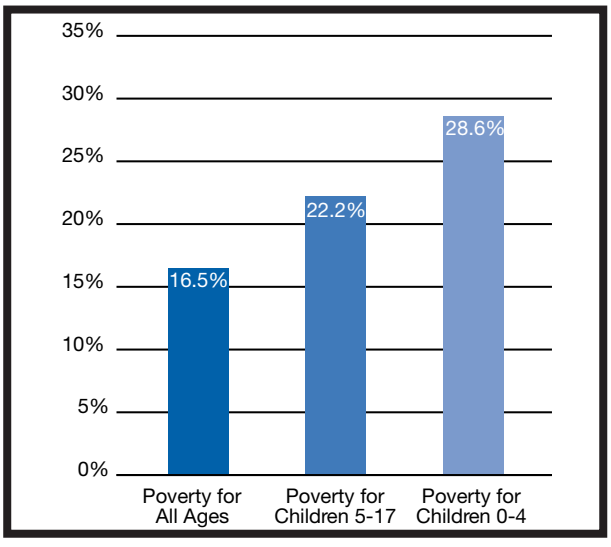

Figure 1. Poverty Among Age Groups

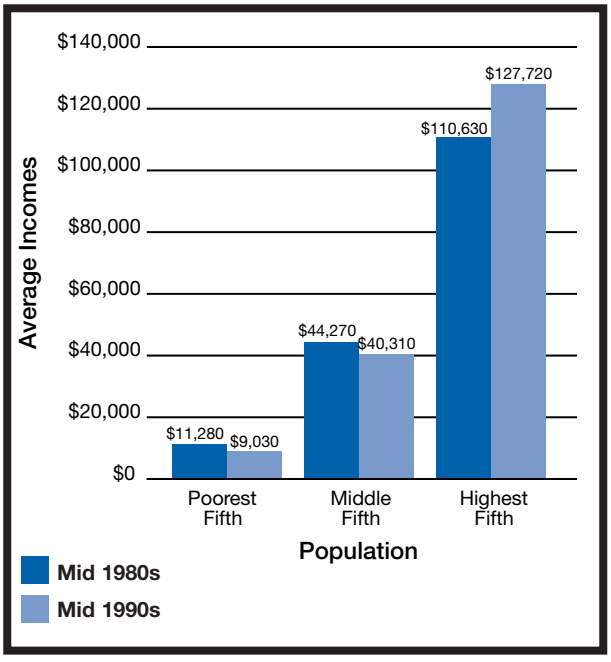

Figure 2. Worsening Income Inequality in California

ence poor health, to die during childhood, to be retained or drop out of school, to give birth out-of-wedlock, to experience violent crime, to grow up to be poor adults, and to suffer other undesirable outcomes.

Research on early learning and child development illustrates the connection between rising child poverty and low test scores. Children who have not had access to stimulating environments or education opportunities lag behind children who have.

Again, race and family status predict these circumstances. For example, participation in preschools is substantially lower for Latino families than for other ethnic groups.[7] And 49 percent of children with one parent live below the poverty level in California, compared to 19 percent of children in two-parent families.[8] Furthermore, poverty exerts a cumulative disadvantage as children continue in school. As more children qualify for free or reduced-price meals in California (48 percent in 1998), their ability to succeed in school goes down. So without programs that assure school readiness, achievement will remain low for an unacceptably large segment of the student population.

Without continuous, targeted government intervention to strengthen the financial stability of all families, including providing equal opportunities for early learning, neither the academic achievement of today's students nor the state's productivity will reach its fullest potential.

A Brief History of Child Care and Early Education Investments

California has long been a leader in recognizing the value of high-quality child-care and development programs for infants, toddlers, pre-kindergarten children, and school-age children from low-income families who are working or receiving public assistance. The state has prioritized child-care subsidies for low-income families, behind only programs for abused or neglected children. In addition to higher funding levels, California offers an impressive variety of programs, including publicly funded programs, nonprofit agencies and private providers. However, too many state and federal efforts have been developed in a haphazard, fragmented, and decentralized way. Partly as a consequence, the number of available child-care spaces has been insufficient, resources inadequate, and the quality at facilities uneven.

The state preschool program was first funded in 1965 through school districts to prepare low-income children aged 3 to 5 for school. In the 1970s, Schools Chief Wilson Riles expanded federal efforts to strengthen early education for about two-thirds of the state's children in kindergarten through third grade with the Early Childhood Education plan. The program aimed to ensure mastery of reading, stronger instruction in writing and math, teacher training, and greater parental involvement. Current efforts to bolster reading mastery by the end of third grade may have stemmed from Riles' vision.

More recently, grants to public school districts and preschool programs, along with a national child-care block program in 1990, ushered in a shift toward parental vouchers. In 1992, California ranked sixth in the nation in per-child expenditures on child care and early childhood development, and in 1994 it ranked fifth in the percentage of state tax revenues spent on these services.[9] Showing its commitment to early education, the state increased its

child-care funding from the Department of Education (CDE) and Department of Social Services (DSS) from $324.4 million in 1987 to $2.4 billion in 1997; this figure excludes federal Head Start Centers, on which about $400 million is spent per year in California.[10] The child-care and development system in California continues to be the largest and most comprehensive in the nation with funding well over $1.2 billion dollars for 1998-99.

Need for Greater Coordination

Even so, significant coordination problems arise when different agencies administer child-care programs for welfare recipients and working poor families. DSS has been responsible for most federally funded TANF-related child-care programs, which are state-supervised and county-administered.[11] CDE is in charge of all state-funded child care and early childhood development programs as well as the federal Child Care and Development Block Grant (CCDBG). Yet the two agencies have different goals: DSS views child care as a support service to help welfare families become self-sufficient, while CDE considers child care a critical component of education. The programs also vary in terms of eligibility requirements, maximum payment amounts, eligible providers, priority groups for subsidies, and time limits. These differences obstruct families' efforts to maintain a stable child-care arrangement when moving on and off welfare or from program to program. They also create institutional and political impediments to a streamlined universal preschool program.

Added Demands of Welfare Reform

The state is now in its third year of implementation, starting in September 1999, of the California Work Opportunity and Responsibility to Kids (CalWORKs) program, which aims to move families from welfare dependency to work and self-sufficiency. Under CalWORKs, participants must engage in work and/or work preparation activities and are provided with an array of welfare-to-work services, including child care. Putting 500,000 welfare recipients—single mothers—to work will continue to strain an already strapped child-care system. Even though California augmented the federal block-grant funding to boost child-care investments, the state is not meeting increased demand.

As more women, especially single mothers, enter and stay in the workforce after having children, increasing numbers of families depend on non-maternal care for their infants and children. In 1975, 39 percent of mothers with children under six worked outside the home; today, the number is 62 percent.[12] Additionally, growing numbers of parents—across social classes and ethnic groups—have become more determined to advance the early development and learning of their children.

Welfare recipients face difficulties navigating the complicated child-care system. Often recipients are not sufficiently informed by their caseworkers of the options available to them, in part because of changing requirements. But low-income working families in California also face major barriers to finding child care. These working families—who pay a sliding-scale, income-based fee for child care—have difficulty accessing services because in most counties there is no centralized place to apply. Once they apply, families often face long and uncoordinated waiting lists.[13] With an inadequate supply of child-care providers, parents often wait years for child care, paying out-of-pocket for care and putting their jobs in jeopardy by

sometimes having to stay home to care for their children. It is estimated that only 20 percent of eligible families receive subsidies to help pay for child care in some counties.[14] In fact, some families may not even be aware that they are eligible for subsidies. Early findings from a PACE longitudinal study show that a number of factors, such as a mother's race or ethnicity, the age of her child, and whether other adults live in the home, influence whether the mother will use a child-care subsidy.[15]

Fortunately, political leaders are aware of the importance of educational opportunities for the youngest Californians. Former Governor Wilson greatly expanded child care and preschool opportunities for low-income children. And Gray Davis has supported the effort with increased funding for materials and reading instruction. State Superintendent Delaine Eastin has been the boldest of all, asserting that only universal preschool will ensure that all children start school ready to learn. Another bright spot in terms of investment in young children was the first round of funding from the California Children and Families Commission, which was heavily targeted on early education, child care and literacy. The State Commission recognizes that in addition to equalizing access to quality programs, more providers must be trained and incentives must be provided to stabilize the child care workforce.

Poverty and the Link to Education Reform

The effects of poverty on school achievement, school completion, and adult earnings are well documented, and are even stronger than the effects of single parenthood on these factors.[xvi] The gap in achievement between poor and better-off children is apparent as early as kindergarten, and nationwide, six out of ten low-income students in fourth grade cannot read.[17] Furthermore, the consequences of poverty are long lasting. One study found that the connections between poverty, parental stress, family conflict and harsh parenting account for most of the differences in school grades among tenth graders.

Since 1964, studies have shown that early experiences in the home shape learning ability.[18] And recent brain research shows that children's use of language originates long before they speak their first word; by their sixth month, infants are already cracking the language code. Since most brain development occurs between birth and five years, early and sustained educational activities are critical to school readiness. When poor children enter school they are already two to three years behind their more affluent peers in almost every measure, since early academic performance is dependent on non-school experiences. Better-off parents can afford to move into neighborhoods with higher quality schools. Having more discretionary time, they also are better able to read to their children, to assist their children with homework, and to engage them in a variety of intellectually stimulating activities from the preschool years forward.

Since learning begins five years before children enter kindergarten, early literacy experiences provide a major boost. But poor and minority families are less likely to engage in literacy activities than their wealthier and white counterparts. Nationally, white parents were more likely (90 percent) to have read to their

children three or more times per week than Hispanic parents (65 percent). The education level of parents also influences the frequency of literacy experiences at home. And more parents with children enrolled in preschool visited a library in the past month (43 percent), as compared to parents whose children were not enrolled (32 percent).

While it is tempting for politicians these days to blame schools for low test scores, socioeconomic background is the biggest predictor of school performance. Since the lowest performing schools are the ones with the greatest share of poor students, offering these children the same early enrichment as their affluent peers would help to even out the achievement disparity. And since better educational opportunities are one way to reduce the growing income gap, there is a clear imperative to ensure equal access to quality preschool programs.

The Effects of Poverty on Learning

- **Fewer resources.** Children who attend schools with high numbers of poor students are more likely to have under-qualified teachers and less access to preschool, early reading programs, counseling, and small class sizes. Often a culture of low standards and expectations prevails.
- **Lower test scores.** Recent achievement results (STAR) show that the state's low-income children—those who qualify for free or reduced-price lunches—score on average half as high as the test-takers who are not classified as "economically disadvantaged." In reading, 22 percent of low-income fourth-graders scored at or above the national average, compared with 56 percent of fourth-graders who are not economically disadvantaged. In math, 33 percent of low-income sixth-graders met or topped the national average, compared to 56 percent of better-off sixth-graders.[19]

Poverty is also related to SAT achievement. Studies have shown that for every $10,000 increase in income (through $100,000), there is a corresponding rise in students' verbal and math SAT scores. Low-income students were five times less likely to go to college than their better-off counterparts. As noted earlier, educational attainment is more important than ever in earning a livable income. So, if increasing numbers of low-income students are not college-bound, they are not likely to escape poverty.

Less school engagement. Children in lower-income families are also more likely than those who live in wealthier households to have behavioral and emotional problems, and they are less likely to be "highly engaged" in school. For example, 41 percent of children representing all income levels cared about doing well and willingly completed homework assignments. But only 34 percent of lower-income students were engaged in school. But it is important to note that lower-income parents still read to their children and help them participate in activities outside the classroom, such as clubs and sports. These rates of parent involvement in school-related activities vary by race/ethnicity, parent education level, and family structure.[20]

High-Quality, Affordable Child Care in Short Supply

While finding a child-care space is difficult in California, its cost may be even more prohibi-

tive. Middle-class families must spend disproportionate percentages of their discretionary income on child care, as compared to high-income families. And working-class families who earn 75 percent of the state median income (approximately $28,000 per year) do not qualify for subsidies. Therefore, while high-income families pay for private care, and low-income families are eligible for public assistance, the working and middle classes are hit hardest in the search for quality and affordable child care. The average annual cost of child care for a 4 year-old in an urban area is much higher than the average annual cost of public college tuition. For example, the average annual cost of center-based child care for a 4 year-old in Alameda County is $6,032, whereas the average public college tuition is $2,731.xxi Parents of infants pay even more. In California, the average annual cost for infant care in a center is $7,812.[22] In any case, the cost is high whether parents choose center or family child care, whether they live in an urban or rural area, or whether they have infants, preschoolers, or school-age children. As mentioned earlier, state funds are not able to cover the child-care costs of all the families who are eligible to receive it: Only about a fifth of qualifying Californians receive child-care subsidies.

Unequal Access to Child Care

In France, 99 percent of all 3 and 4 year-olds attend preschool. But in California, only about half attend some form of partial or full-day child care, and as many as 75 percent of these programs are not developmentally or educationally appropriate.[23] This is partly parental choice; some families prefer informal child-care settings. And some parents stay home with their children. But the state's lower child-care enrollment is also a result of insufficient child-care spaces.

Several factors drive the local preschool and child-care supply: the size of the child population; the maternal employment rate and family income; the average family social characteristics (including incidence of female-headed households, maternal education level, share of non-English speaking parents, and family propensity to enroll in public assistance); and the number and strength of community/religious organizations.[24]

Not surprisingly, child-care supply is uneven across neighborhoods and counties in California, depending on income. When wel-

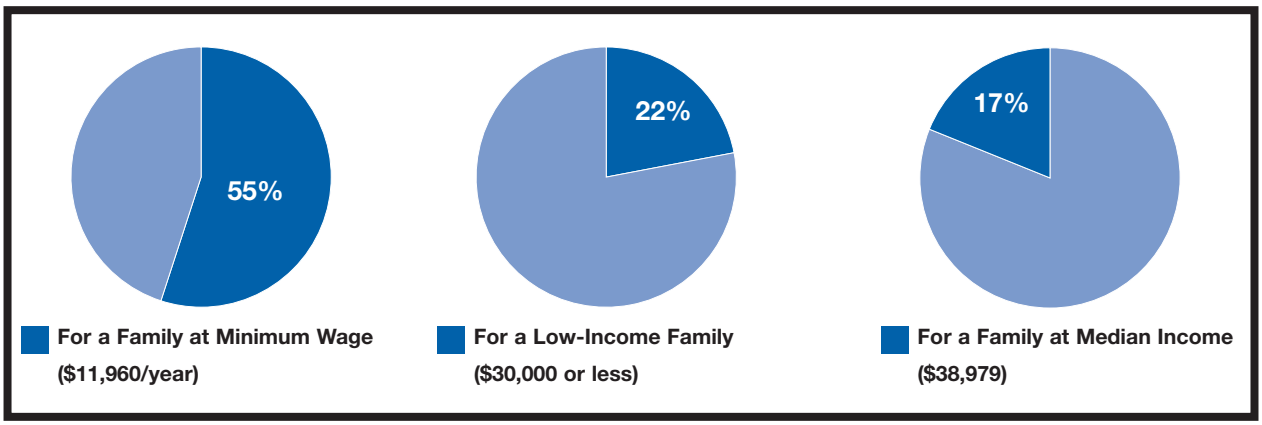

Figure 3. Portion of Income Needed to Pay for an Infant in a Licensed Child Care Center
Source: The California Child Care Portfolio 1999, California Child Care Resource & Referral Network

fare caseloads in California dropped from about 902,000 in January 1994 to about 639,000 January 1999, more mothers with young children entered the workforce, and more child-care spaces were needed in neighborhoods with the scarcest supply. Families on public assistance and low-income working families have less access to child care than wealthier families. While access is limited in the poorest neighborhoods, blue-collar families are actually hit the hardest.[25] They can't afford not to work, yet even average-priced child care is unaffordable. These parents must choose lower-cost, lower-quality care. This means that the children most in need of child care to provide a strong start for school are the least likely to find it.

Uneven Quality in Child Care

There is a clear need to augment child-care supply, especially in low-income neighborhoods. But special attention must also be paid to program quality. High-quality programs have been shown to increase a child's chance for school success. They are characterized by well-prepared and well-compensated providers; a low provider/child ratio; developmentally and age-appropriate practices; parent involvement; links to community services, such as health care or parent education; strong management and administration; and a safe, healthy, comfortable environment. Research has shown that quality programs enable preschoolers to enter kindergarten with the skills needed for coping with

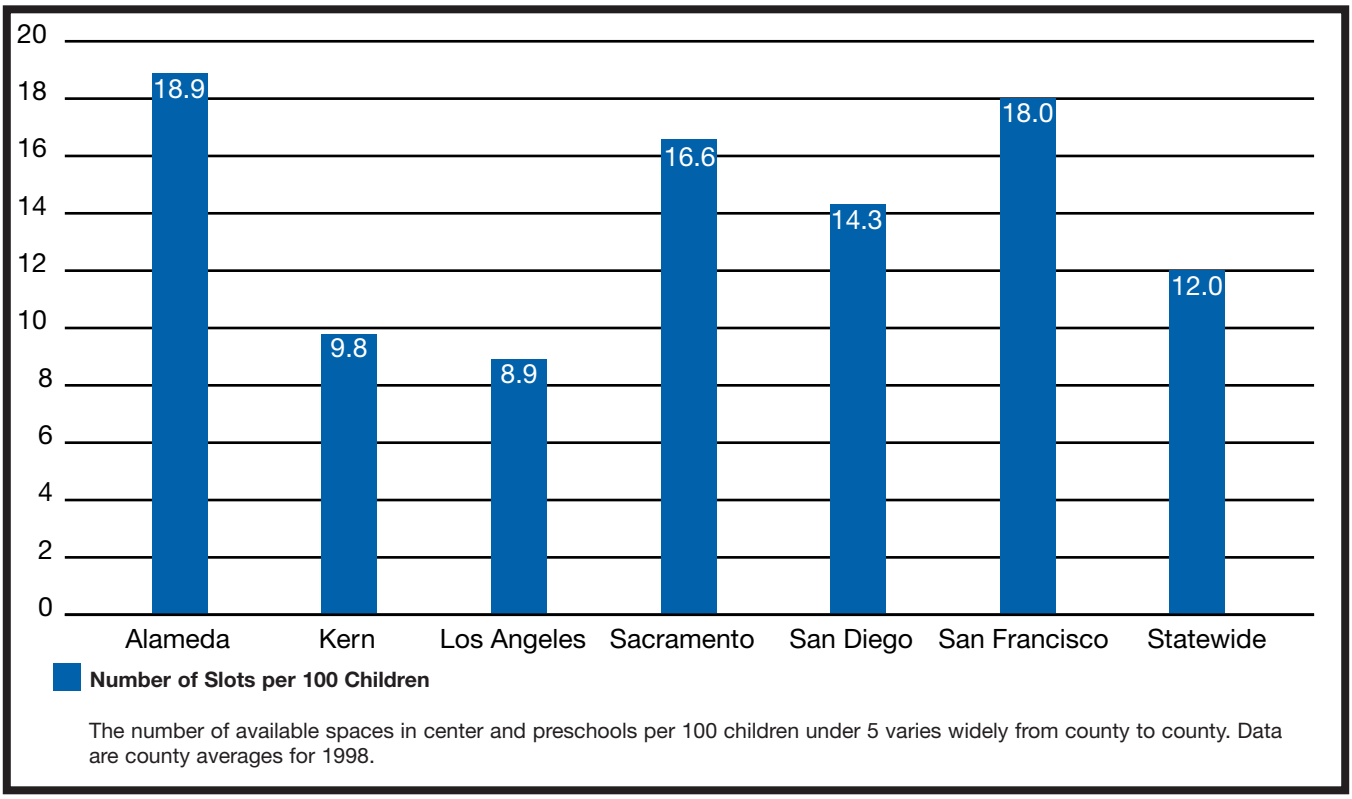

Figure 4. Total Supply of Licensed Child Care Per 100 Children
Source: California Child Care Resource and Referral Network, 1998 and State of California, Department of Finance, December 1998.

school tasks. These children show greater knowledge of verbal and numerical concepts, receive higher ratings on social competency, show greater task orientation, are more likely to make normal progress throughout the primary grades, and are less likely to be held back or placed in special education classes.[26] Similarly, low-quality programs can actually do harm; programs with insufficient funding, high staff turnover, and poor management can impede children's potential to learn.[27]

It is also important to situate welfare-poor and working-poor families within their quite variable neighborhoods. Neighborhood and metropolitan contexts vary in terms of employment opportunities, ethnic composition and child-rearing norms, and organizational infrastructure.

While there has been much long-term research on early-childhood education programs serving poor and at-risk children, a new study from the National Institute of Child Health and Human Development (NICHD) is described as the first to show a link between the quality of child care and children's school performance. The four-year study, called *The Children of the Cost, Quality, and Outcomes Study Go To School*, followed children through second grade and demonstrates that higher quality child care is related to fewer reports of problem behaviors, higher cognitive performance, higher language ability, and higher levels of school readiness[28].

The study also found that children who attended centers with higher-quality classroom practices had better language and math skills in their preschool years through second grade than children in the study who attended centers that provided lower-quality care. This supports the belief that high-quality child care not only increases school readiness but also helps children continue to succeed. Furthermore, children in the study who had closer relationships with their child-care teachers had fewer problem behaviors and better thinking skills. According to the researchers, warm teacher-child relationships also had some influence on children's language and math skills through grade two, but those effects were not as strong. The study found an even stronger relationship between high-quality care and the cognitive and emotional development of children whose mothers had a high school education or less, an important finding for California. As mentioned earlier, mothers who did not complete high school are much more likely to be poor than those who have a college degree. High-quality child care can mitigate the effects of poor home environments lacking in educational materials or other pro-development activities.

Factors such as family income, mothers' psychological well-being, and maternal behavior have more of an influence on children's social competence at two and three years of age than does the children's child-care arrangement. However, quality child care was related to greater social competence and cooperation in children and less problem behavior at two and three years of age. Also, more group experiences predicted more cooperation with other children and fewer problem behaviors at both two and three years of age. Finally, the consistency of the child-care setting also played a role in the development of social competence. At age 2, children who had been in several different child-care arrangements showed more problem behaviors than did children who had been in fewer day-care arrangements.[29] If

California wants all its children to be ready for school, it must improve both the quantity and quality of child-care experiences.

A Fragmented Child Care Governance System

California's child-care system is highly decentralized, with programs that are state-supervised and county-administered. At the state level, agencies set overall policies, determine eligibility criteria and benefit levels, monitor local practices, and provide technical assistance to counties to ensure that state policies are followed. Because counties have varying amounts of administrative flexibility within these parameters, problems arise around decision-making, authority, and fiscal responsibility. As a result, thin data exists on child-care capacity, the number of organizations operating, the number of children served, and the quality of teachers and staff. No single agency knows how many providers benefit from child-care vouchers. California taxpayers have been supporting a $1.2 billion preschool and child-care industry with almost no information about the supply of organizations, the individuals serviced, or the quality of services.

The child-care program is also highly fragmented, as it is delivered in three stages. Stage 1 is administered by the Department of Social Services, while Stage 2 and Stage 3 (Set-Aside) are administered by CDE through its certificate-based Alternative Payment Programs. Eligibility for federal and state subsidized services will continue to be based primarily on income and need, with additional criteria depending on program type and fund source.

In order for CDE and DSS to help transition families off welfare, and to help low-income families remain self-sufficient, they must work collaboratively to develop a streamlined and consolidated state plan for child care and development services that meets the needs of California's families and children.

Hopeful Policy Directions

California families under 200 percent of the poverty line fall below the national average on indicators such as employment rates among parents, health insurance, the frequency of reading and storytelling to young children, and the ability to afford food.[30] With such variation in opportunities for young children, an undeniable need exists for integrated policies that reduce the harmful and far-reaching effects of economic instability. Essential to mediating the state's bifurcated labor structure would be an equal opportunity agenda that includes plans for family support in addition to accountability and tough standards for education. Following are some recommendations to this end.

- **Equalize access to child care and preschool for all children in California.** The state has 1.13 million children aged 3 and 4, only a portion of whom attend programs that boost their academic and social skills. This is partly because child-care supply is highly uneven across and within California counties. Parents in Los Angeles are half as likely to find a preschool or child-care center slot for their youngsters as those living in San Francisco.[31] Even in counties where the supply is higher, preschools are inequitably dis-

tributed between affluent and blue-collar communities. Furthermore, the number of young children statewide is rising more rapidly than the preschool system's capacity to keep up. Preschool spaces grew just 2.2 percent in the average community between 1996 and 1998, while the child population grew over 10.8 percent. Efforts should be made to expand child care capacity in the neighborhoods and language communities where supply is most scarce.

- **Offer aid for working class and lower-middle-class families.** Affluent parents enjoy access to three times as many child-care spaces as blue-collar and middle-class families. Less well-off parents lack purchasing power for private centers but are not eligible for aid to pay for preschooling. The fact that so many Californian children live in or near poverty despite the presence of working parents demonstrates that poverty is a mainstream problem, affecting children from all racial and ethnic backgrounds, from all regions of the state. Providing low-cost health insurance, wage supplements to low-income working families, job opportunities, work-related services, and child-care assistance to working poor families would enable them to secure steady employment and achieve financial stability. Only with additional supports can these parents keep a job and ensure that their children are healthy and cared for.
- **Develop a Master Plan that includes exploring the feasibility of universal preschool.** State Superintendent Delaine Eastin's plan for universal preschool, which would slowly phase in free early education programs starting with low-income communities, is consistent with the state's commitment to higher expectations and standards for all students. Necessary to its success would be stabilizing and diversifying the preschoool workforce. In addition, efforts to improve the ratio of child-care providers to children, lower group sizes, increase caregivers' levels of education, and increase the safety and intellectual stimulation of child-care settings are needed. A recent RAND study found that for every dollar spent on early childhood programs, society later saved several dollars on welfare, special education, and criminal justice.[32] In a time of economic plenty, it makes sense to expand early education programs that have lasting effects. We cannot raise the reading proficiency of California's 9 year-olds until the opportunity to learn the basic building blocks of language becomes equally available. While child-care expansion highlights the need to simplify the governance structure, the State and County Proposition 10 Commissions are creating another layer of governance. Nevertheless, they are moving ahead in innovative directions.
- **Allocate dollars to improve child-care quality and increase capacity for CalWORKs and low-income working families.** Offering safe and stimulating child-care opportunities to mothers moving off public assistance is critical to the success of welfare reform. Early findings from the PACE *Growing Up in Poverty* study show that, despite increased state funding, many mothers are not taking advantage of their subsidies.[33] More resources should be targeted to improving access to information and case

management, so that mothers are locating and securing the child care they need while they move into the workforce.

Support the economic stability of families. Increasing tax relief for working poor families, such as the earned income tax credit (EITC) for married couples, would give a hand to families still struggling to make ends meet. The EITC appears to be the most effective federal policy for providing low-income families with crucial annual savings. If every eligible family in Silicon Valley filed for the federal earned income tax credit, over $70 million more dollars would flow into their households, at no cost to Sacramento. Similarly, under a fourth of all eligible parents in the county receive adequate information about child-care subsidies, vouchers that now equal a third of a working poor parent's take-home pay. Expanding health coverage for uninsured children would also boost the well-being of many low-income families, especially those who lose their Medicaid coverage when they leave welfare. Other forms of continued and targeted aid, such as cash assistance, child-care subsidies, and food stamps would ensure that children grow up to be healthy, cared for, and ready to learn.

- **Link early education to school reform. The evidence is clear that school reforms beginning at kindergarten are too late.** The early years are the critical period in child development where youngsters can reach or fail to attain a healthy start. Committing to funding early childhood programs and full-day kindergarten as part of education reforms would help close the achievement gap between poor children and their better-off counterparts. No matter how many education reforms descend from Sacramento, if children's basic needs are not being met, improved learning cannot take place. Reading scores will not climb in the early grades as long as access to preschooling remains so unequal across and within counties in California. Furthermore, new incentives to retain K-12 teachers will continue to drain the pool of preschool teachers unless we build parallel efforts in early education.

By all accounts, the country's economy is booming, with nine years of unimpeded growth, plentiful jobs, lowered interest rates and a surplus federal budget. But not all Americans have watched their income rise along with the stock market. Despite the prosperous economy, the Governor's emphasis on education reform, and recent increases in child-care funding, most low-income children come to kindergarten less prepared than their more affluent peers. Until parents have the economic security and resources to aid their children's path through school, test scores will not budge. Isolated and small-scale programs will do little to equalize opportunity and raise student performance levels unless the state is willing to focus on improving home environments and economic stability for all our families.

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Chapter 3

The Schooling of English Learners[1]

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An increasing number of students entering California's schools come from non-English speaking backgrounds. Although some of these language minority students enter school already proficient in English, the majority do not. These students are now referred to as English learners.[2]

There are several reasons why Californians need to pay careful attention to the schooling of language minority students in their public schools. First, language minority students now constitute more than one-third of all students in California's schools—a proportion that will grow even higher in the future. Clearly, the success of California's students and schools will increasingly depend on the state's ability to successfully educate language minority students.

Second, English learners require a specialized curriculum and properly trained teachers to support their development of English literacy. Complicating matters is the fact that these students, even as they learn English, must also have access to the rest of the required academic curriculum if they are to keep pace with their English-speaking cohorts.

Third, the education of English learners has been highly politicized. Controversy centers around the use of native language instruction—whether it is better to first develop the native language literacy of English learners and provide initial academic content through bilingual education or, on the other hand, to simply immerse them in English and provide initial academic content through simplified English instruction. While existing evidence generally supports the bilingual approach, the research is hotly debated and far from conclusive regarding which general approach makes more sense for which students and under what conditions.[3] At the same time, there is a growing political movement in many states to mandate, through voter initiatives, English-only instruction. In June 1998, California voters approved Proposition 227, an initiative that greatly restricted the use of bilingual education.

This chapter provides an overview of the schooling of English learners in California. First, we review the nature and growth of the language minority population. Second, we review the political context surrounding the instruction of English learners, focusing on the adoption and impact of Proposition 227. Third, we examine the nature of the teaching force for English learners. Fourth, we analyze the achievement of English learners. Finally, we conclude with several pending or emerging

issues that will continue to affect the education of English learners into the foreseeable future.

The Growing Language Minority Population

Many California students come from non-English speaking backgrounds. This is due, in large part, to the large number of immigrants in California. In 1997, 25 percent of California's residents were born outside the United States, more than any other state.[4] It is also due to differences in the rates that immigrant families become proficient in English, which depends upon the opportunities for learning and using English in their daily lives.[5]

Both federal and state laws require that public schools identify students who are not yet proficient in English in order to provide them with supplemental services. This is done as a two-step process. First, schools identify students who come from non-English speaking backgrounds through a home language survey that asks parents a number of questions about the language background of their child.[6] If the answers to any of these questions indicate that the child comes from a non-English speaking background, the child is identified as a language minority student.

The second step of the process is to assess the English language proficiency of the student. This is typically done with one of several language proficiency tests available from com-

	English Learner		Fluent English Proficient		Language Minority Total		Total Enrollment
	Number	Percent of Total Enrollment	Number	Percent of Total Enrollment	Number	Percent of Total Enrollment	Number
				All Students			
Grade K-5	907,379	32%	257,409	9%	1,164,788	41%	2,836,042
Grade 6-12	515,529	18%	498,363	17%	1,013,892	35%	2,916,775
Ungraded	19,784	22%	2,591	3%	22,375	25%	91,294
Total	1,442,692	25%	758,363	13%	2,201,055	38%	5,844,111
				Spanish-Speaking and Latino Students			
Grade K-5	759,845	60%	160,115	13%	919,960	73%	1,262,243
Grade 6-12	403,531	36%	316,883	29%	720,414	65%	1,107,629
Ungraded	18,177	43%	2,104	5%	20,281	48%	42,187
Total	1,181,553	49%	479,102	20%	1,660,655	69%	2,412,059
(% of all students)	(82%)		(63%)		(75%)		(41%)

Table 1. California Public School Enrollment by Language Minority Status and Grade Level, 1999
Source: California State Department of Education, *Language Census Summary Statistic, 1998-99* (Sacramento, California: author). Retrieved November 8, 1999 from the World Wide Web: http://www.cde.ca.gov/demographics/reports/statewide/lcsum99.htm; California State Department of Education, E*nrollment by Ethnic Group, 1981-82 through 1998-99* (Sacramento, California: author). Retrieved November 8, 1999 from the World Wide Web: http://www.cde.ca.gov/demographics/reports/statewide/ethstud.htm.

mercial test publishers.[7] In kindergarten, when most students enter school, the tests only assess a student's oral English proficiency. Beginning in second grade, the language proficiency tests evaluate both oral and written English proficiency. The tests usually rate students' English proficiency at five or six levels, ranging from non-English speaking to fluent English speaking.[8] If students can understand English as it is used in school for instruction, they are classified as Fluent English Proficient (FEP) and not provided any special services. If students are not sufficiently proficient in English to understand classroom instruction, they are identified as English learners (ELs).

The California Department of Education conducts an annual language census each spring to count the number of language minority students and to identify the instructional programs and the teaching force that serves them. The 1999 Language Census identified 2.2 million language minority students in California, which represented 38 percent of the total student population in 1998-99 (see Table 1). About two-thirds of language minority students were identified as English learners and one-third as Fluent English Proficient (FEP), but these proportions vary widely by grade level. Among younger students, the vast majority of language minority students are English learners, while in the upper grades the proportions of ELs to FEPs are more nearly equal. This pattern reflects the fact that, over time, an increasing number of English learners become proficient in English and are reclassified as Fluent English Proficient. But as we point out below, the process of reclassification is far from straightforward.

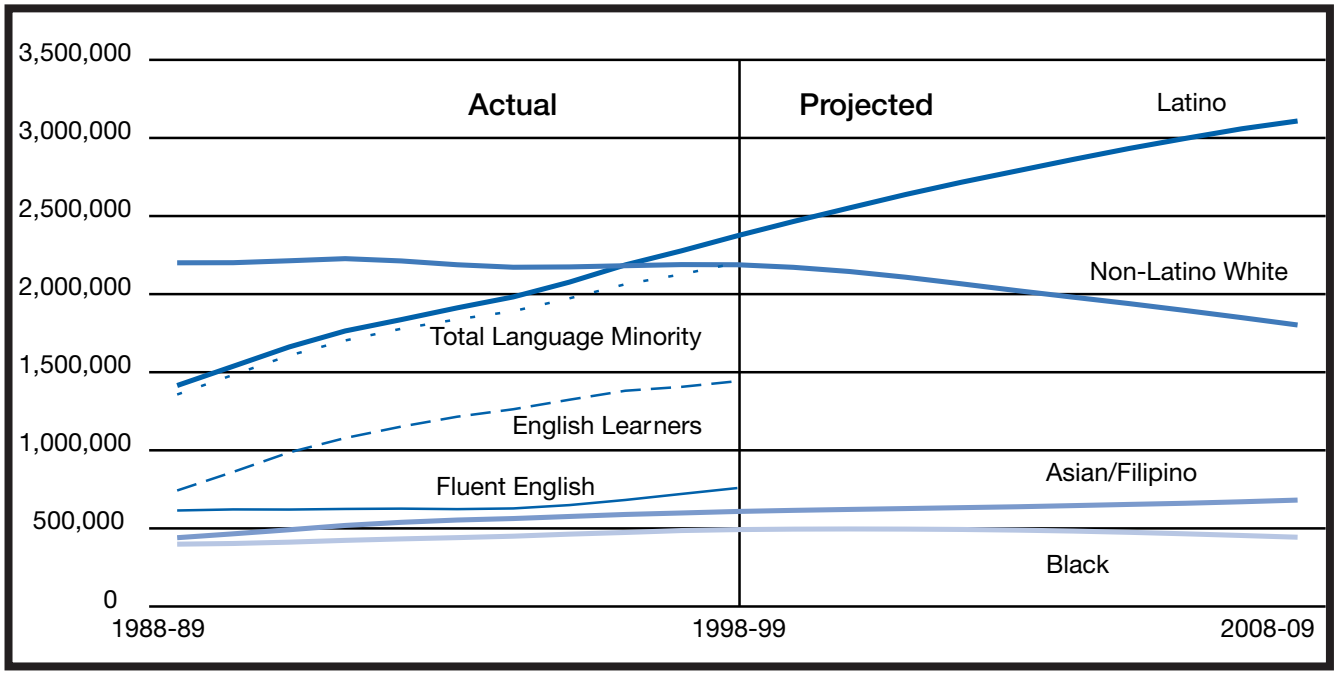

Figure 1. California Public K-12 Enrollment by Major Ethnic and Language Minority Groups, 1988-89 to 2008-09

Source: California Department of Finance, *California Public K-12 Enrollment Proejections by Ethnicity: 1999 Series*, Retrieved from the World Wide Web November 21, 1999: http://www.dof.ca.gov/html/Demograp/K12ethtb.htm; California Department of Education, Language Census Report for California Public Schools, various years.

In California, three-quarters of language minority students—more than 1.6 million—are Latino and come from Spanish-speaking backgrounds (see bottom panel in Table 1). The remaining language minority population comes from a wide variety of language backgrounds, with Asian languages (Cantonese, Vietnamese, and Hmong) being the next most common groups.[9]

The population of English learners in California's schools has grown dramatically over the last fifteen years. Between 1983-84 and 1998-99, the number of English learners increased almost five times faster than the overall student population (196 percent versus 43 percent).[10] In 1983-84, one out of eight California students was an English learner—today it is one out of four. This proportion will likely increase in the future. According to projections from the California Department of Finance, Latino enrollment in California's public schools will increase more than three times as fast as overall enrollment (see Figure 1). And since the majority of Latino students come from non-English speaking backgrounds, this increase will likely result in a growing number of English learners in California's schools.

While the procedures for identifying language minority students and assessing their initial level of English (usually oral) proficiency are relatively straightforward, the procedures for re-classifying students as fluent English proficient and instructing students to achieve English fluency are not. Until recently, district procedures for reclassifying English learners had to follow quite prescriptive state guidelines. But the California State Board of Education recently abolished many of those guidelines. [11]

In the past, reclassification was based on multiple measures of both English proficiency and student achievement. These assessments were based on either commercial English proficiency tests or district-developed assessments. In addition, students had to perform above a certain percentile level (usually 35 to 36) on a norm-referenced test in reading in order to be reclassified as Fluent English Proficient. The achievement-level requirement was not only to ensure that English learners were proficient in English, but to ensure that they were minimally successful in school before losing all supplemental language support. Critics have argued, however, that using even a relatively low cut-off on a norm-referenced achievement test sets too high a standard since the use of percentile measurement virtually ensures that a significant percentage of English learners can never meet the criterion. In effect, they would have to outperform about one-third of native-English speakers in order to do so.[12] Even with the previous standard of using the 36 percentile as a cut-off, however, six to eight percent of all English learners are reclassified as Fluent English Proficient each year. And over the last ten years, the number of English learners reclassified as English proficient has increased at almost the same rate as the overall population of English learners—100 percent (also see Figure 1).

One subject of considerable debate concerns how long it takes for students to become proficient in English. The answer to this question depends on how English proficiency is defined and measured. Even based on the more common approaches described above, the length of time is considerable. A good illustration comes

from a recent study of a school district in the San Francisco Bay area with a mix of Spanish and Vietnamese background students.[13] The study examined the English proficiency and reclassification of a sample of 1,872 students in grades 1-6 who had entered the district as English learners in kindergarten. As Figure 2 shows, it takes longer for students to become proficient in written English than in oral English. By the end of fourth grade, after being in the district for five years, 90 percent of the students were classified as proficient in oral English. But it took seven years in the district for 90 percent of the students to be classified as proficient in English reading and writing. These findings probably understate the amount of time it takes to become proficient in English because the sample only included students who had been in the same district since kindergarten. Research has shown that student mobility increases the amount of time it takes to become proficient in English.[14] Other studies have found that the amount of time it takes to become proficient in English reading and writing varies from six to ten years.[15]

Some scholars believe that existing indicators of English proficiency are insufficient to ensure the continued school success of English learners. They argue that to succeed in school, especially in secondary and postsecondary school, English learners need to acquire *academic English*, "the specific type of English entailed in reading and writing academic papers and in discussing academic issues."[16] Academic English involves using specific linguistic functions of the language—such as persuading, arguing, and hypothesizing—that are not well represented in general measures of English proficiency. Therefore, English learners who may be classified as English proficient based on standardized English proficiency tests may not have acquired proficiency in academic English. Some of these students may even do well enough in secondary school to get into college, but they often encounter difficulty doing college work.

For example, at the University of California, Irvine, which enrolls the largest population of language minority students in the UC system, 60 percent of incoming freshmen failed the freshman writing exam in 1998.[17] Over 90 percent of these students were language minority

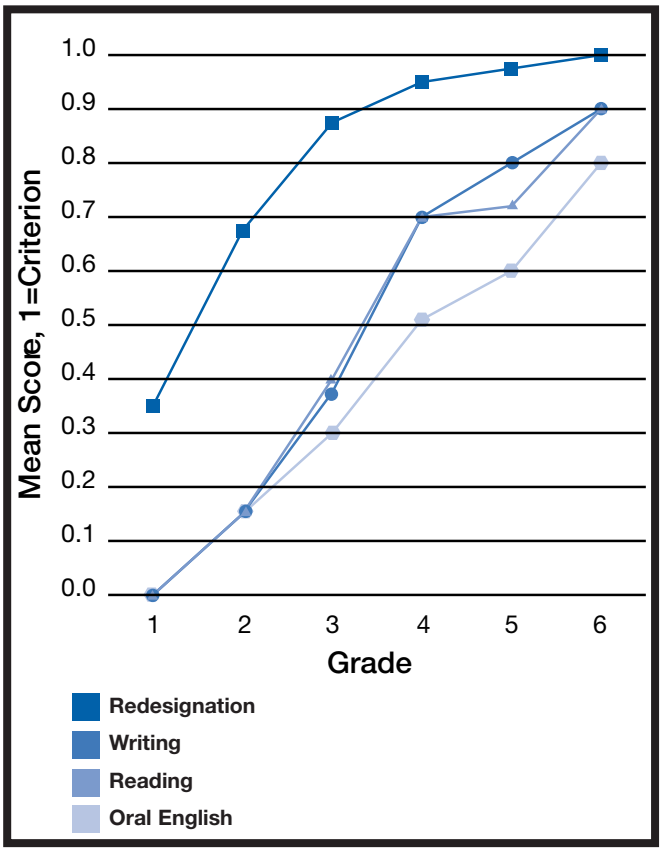

Figure 2. English Oral Proficiency, Reading and Writing Development and Redesignation Probability as a Function of Grade Level: One California School District

Source: Kenji Hakuta, Yuko Goto Butler, and Daria Witt, *How Long Does It Take English Language Learners to Attain Proficiency?* (Santa Barbara: UC Linguistic Minority Research Institute, forthcoming), Figure 8.

students who had attended American schools for over eight years; furthermore, 65 percent of them had taken Honors and Advanced Placement English courses in high school. A similar pattern exists at the twenty-two campuses of the California State University System, where 65 percent of all entering Mexican American and Asian American students required remedial English in 1998.[18]

These data suggest that even the most successful English learners—those who enroll in four-year colleges—may not master the levels of English required in advanced academic settings. However, most English learners never advance that far. The reason is simply that learning English is difficult and learning academic English is even more so. While ordinary or everyday English is learned both inside and outside of school, academic English is generally learned in school from teachers and textbooks, and only with proper instructional support.[19] Unfortunately, as we point out below, many English learners are not given the instructional support they need because of a lack of properly trained teachers who can provide support over a sufficient period of time.

Proposition 227 and the Instruction of English Learners

The rate at which English learners are reclassified as English proficient and no longer in need of special services has become an important political issue in the larger debate about the schooling of English learners. Ever since the *Lau v. Nichols* (1974) decision, states and local school districts have been required to provide appropriate services to English learners. But the nature of those services has generated considerable controversy in many states, including California. The debate has focused on whether English learners should be instructed in their native language while learning English, or simply instructed in English.

California was one of the first states in the nation to enact a comprehensive bilingual education bill—the Chacon-Moscone Bilingual-Bicultural Education Act of 1976, which provided detailed instructions to schools about the type of language support that should be provided for English learners. By 1986, however, the existing California bilingual education legislation had "sunsetted" by not being reauthorized, so bilingual education programs continued under the authority of department of education regulations, which were shaped largely by federal requirements. Numerous attempts were made between 1985 and 1998 to hammer out compromise legislation to restore the statutory basis for the provision of language support services for English learners, but none of these attempts was ultimately successful.

In 1998, California became a battleground for a national movement to abolish all native language instruction by mandating English-only instruction. In California, this movement took the form of a voter initiative—Proposition 227—that severely restricted the use of primary language for instructional purposes, and instead provided for a transitional program of "structured English immersion" that was not normally to last more than one year.[20] The initiative was approved by the voters in June 1998 and schools were required to implement it in the opening days of the 1998-99 school year. For many districts, this meant that only about sixty days were available to prepare for this policy

implementation. The state board of education rushed to provide guidelines for schools,[21] although most decisions about how to implement the mandate were left to the local education agencies. At the same time, districts were dealing with a plethora of other state initiatives that were having an impact on the schooling of English learners, which we discuss below.

What has been the impact of Proposition 227? Proponents of 227 have argued that the shift toward more English instruction is already improving the test scores of English learners.[22] Yet at this early stage there is little research evidence to scientifically assess the impact of 227 on student achievement.[23]However, preliminary research does indicate that Proposition 227 has had a considerable impact on the instruction of English learners in California.

A team of University of California researchers[24] looked at the effects of Proposition 227 in sixteen districts and twenty-five schools during the initial months of implementation.[25] Urban, rural, and suburban K-8 and unified districts were included in the study, as were very large and very small districts. Most of the ten largest districts in the state were also included. Some of the districts had a history of strong support for primary language instruction and had extensive primary language programs before 227; others had relied heavily on English-only programs. Beginning in the fall of 1998, the teams interviewed administrators charged with the policy implementation at each district, and then followed up with interviews of principals, teachers, and bilingual coordinators in key schools within these districts. Researchers selected schools that had relatively large populations of English learners and would therefore be most affected by the policy. Classroom observations were also conducted in most of these schools. This study has yielded several important insights into the implementation and impact of Proposition 227.

Diversity of District Responses

Across the sixteen districts and twenty-five schools, there was wide diversity of responses to the mandate, although this diversity was not without a pattern. Districts with a history of extensive primary language programs and significant numbers of certified bilingual staff were more likely to consult with their communities and to attempt the continuation these programs than were districts and schools with weaker primary language programs and inadequate numbers of certified bilingual staff. Researchers also found that where strong leadership was exercised at the top of the district, either in providing parents with information about alternative options to structured English immersion classes, or in urging principals to discontinue primary language instruction, schools followed suit. However, where district leadership was less prescriptive, the decisions fell to principals, creating a diversity of responses *within* the district.[26] In both situations, some teachers exercised considerable autonomy in interpreting district and school directives, resulting in a diversity of instructional strategies within the same school.

Variation in Procedures Regarding Provision of Waiver Options

In the initial months of implementation, there was considerable confusion across the state about the role of the district and the schools in informing parents of their rights to seek waivers from the structured English immersion

program provided under the provisions of Proposition 227. Although the state board of education had issued an advisory stating that parents were to be notified of the right to seek a waiver from SEI instruction, a fall 1998 survey conducted by the California Department of Education showed that only 67 percent of districts had formally notified parents of this option.[27] Some districts interpreted the initiative as barring any proactive dissemination of waiver information while others considered it their duty under the law to provide parents with information about their program options. Thus, some of the districts moved quickly to provide waiver information to the schools and parents, while others provided such information only as requested from parents, or only after a lengthy period of debate and reflection. Schools and districts that facilitated access to information about the waiver option were more likely to continue to provide primary language instruction for significant numbers of students.

Impact on Classroom Instruction

What teachers chose to do in their own classrooms in the post-227 period depended to a great extent on what they had done prior to 227, and on their own skills, experience, and beliefs about students' learning. However, it was rare to encounter a teacher who contended that his or her instruction and class organization had not been affected. Not surprisingly, teachers who were certified and experienced in bilingual instruction, although no longer assigned to bilingual classrooms, were more likely to continue to provide some level of primary language support for their students. However, this varied greatly depending on the climate in their schools. These teachers were careful to keep primary language support within the strict confines of providing instruction "overwhelmingly in English," as defined by their district. Although many teachers who taught in waivered classrooms, using bilingual methods, contended that their teaching had not changed significantly, they were quick to note that they worried about the future and the possibility that they would be required to change their practice over time. There was a real sense among many teachers that official policy was continuing to evolve. Many experienced bilingual teachers who were no longer in bilingual classrooms reported feeling frustrated by not being able to use the full range of skills they possessed to instruct their English learners.

In the schools that were studied intensively, a much more reductionist notion of literacy was observed, compared to what went want on in these same classrooms prior to the implementation of Proposition 227.[28] Language and literacy were rarely used as tools for learning other subjects; instead English itself—in terms of developing oral fluency and reading decoding skills—was becoming the focal point of instruction. Teachers attributed this focus to their concerns about the English language testing to which students would be subjected and by which students' educational progress would be gauged by policymakers and the public.

Issues in Implementation

The implementation of 227 created a number of problems for schools and teachers:

- **Lost instructional time.** The thirty day English-only period at the beginning of the year mandated by Proposition 227 resulted in a loss of instructional time for almost all English learners because of the temporary

and transient nature of the classes and unavailability of materials to meet all children's needs.

- **Inadequate materials and training for implementing the structured English immersion program.** Several schools reported that while Spanish language texts were discarded or stored away, no comparable texts were available for students in the new English-only program and that teachers were uncertain about how to approach the instruction of their students.
- **Inadequate professional development in the teaching of English reading to English learners.** Professional development time available within the regular school calendar has been reduced as a result of new legislation, and none of the districts or schools studied during the first half of the 1998–99 school year had provided training for teachers that focused specifically on the teaching of reading to English learners under the new Proposition 227 conditions.
- **Teachers' fear of legal reprisals**. A hyperinterpretation of the new law was noted in some schools where teachers created instructional practices and restrictions that were not mandated by the law in an attempt to protect themselves from the possibility of reprimand or prosecution. For example, a teacher might focus on specific features of English, such as word recognition, while ignoring other aspects of general literacy development, such as story-telling.

Overall Effects of Proposition 227

All but four of the sixteen districts studied reduced the percentages of students receiving primary language instruction (reductions ranged from 12 to 100 percentage points); three districts maintained a similar percentage; and one contended that it increased the percent

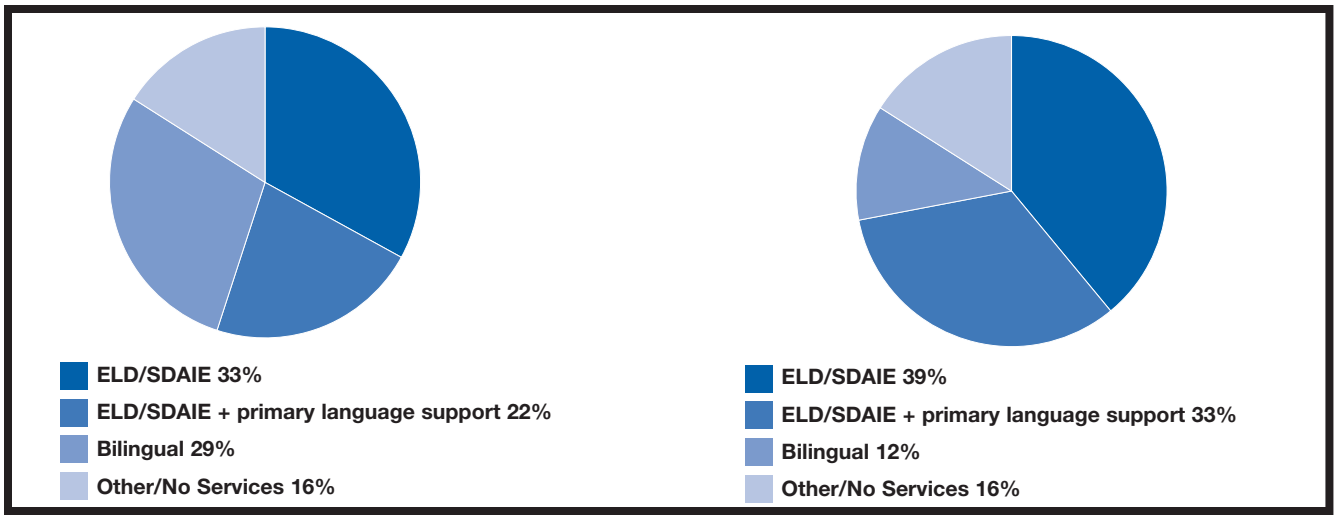

Figure 3. Types of Instructional Services for English Learners Before and After Proposition 227
Note: ELD/SDAIE is English Language Development (ELD) or Specially Designed Academic Instruction in English (SDAIE).
Source: California State Department of Education, *Language Census Summary Statistic, 1997-98* and (Sacramento, California: author). Retrieved November 8, 1999 from the World Wide Web: http://www.cde.ca.gov/demographics/reports/statewide/lcsum98.htm;California State Department of Education, *Language Census Summary Statistic, 1998-99* and (Sacramento, California: author). Retrieved November 8, 1999 from the World Wide Web: http://www.cde.ca.gov/demographics/reports/statewide/lcsum99.htm.

of students who were assigned to primary language programs. Across the state, 29 percent of English learners were in a primary language program prior to 227, and only 12 percent were assigned to one after the implementation of 227 (See Figure 3).

While there was a tendency for schools and districts with extensive primary language programs to continue to provide these programs at some level, some schools with well-developed primary language programs completely abandoned them in the wake of Proposition 227. Moreover, considerable change was found in the actual classroom practices of teachers, with much more emphasis on the use of English, even in schools that purported not to have changed or reduced their primary language instructional programs. Concerns about the requirement that students be tested in English drove these new practices as much as teachers' concerns about avoiding reprimand or worse.

The extent to which schools and districts were changing their perceptions about the need to recruit bilingual teachers was investigated in seven of the sixteen districts. Five of the seven districts continued to seek bilingual teachers; two decided to curtail these hires. This was in spite of the fact that both the department of education and the California Commission on Teacher Credentialing have continued to underscore the importance of BCLAD teachers for a number of instructional purposes.[29]

Thus, while it was tempting to conclude on the basis of principal interviews that not a great deal had changed in some of the schools, a look inside the classrooms yielded a different perspective. Even in bilingual classrooms, teachers were changing their practice to accommodate both practical concerns—such as the impact required English testing would have on their students— as well as concerns for their own professional well-being. Moreover, there was a pervasive sense that policies were still unfolding in many districts; consequently, teachers were unsure of what the future held.

Teacher Recruitment and the Adequacy of the Teacher Pool for English Learners

Perhaps the greatest challenge for the education of English learners is the recruitment and preparation of sufficient numbers of teachers who are qualified and skilled in meeting their specific learning needs. Two primary credentials are offered in California today that are supposed to address the needs of English learners. One is the Cross-cultural, Language and Academic Development (CLAD) credential, which can be earned by examination or through coursework on cultural and linguistic diversity, which includes techniques for Specially Designed Academic Instruction in English (SDAIE) and English Language Development instruction. The other is the Bilingual Cross-cultural, Language and Academic Development (BCLAD) credential, which requires, in addition to the basic CLAD requirements, proficiency in a second language.[30] If obtained through coursework requirements, the BCLAD usually includes more extensive preparation related to second language acquisition.

As pointed out in Chapter 6, currently 28,500—or a little more than one in ten—of the state's approximately 280,000 teachers are

uncredentialed. This situation is not likely to improve any time soon. Furthermore, uncredentialed teachers are not evenly distributed across the state, nor are they evenly distributed among schools and classrooms containing different types of students. English language learners, for instance, are extremely likely to have a less than fully qualified teacher. In 1998, prior to the passage of Proposition 227, California had a shortfall of 11,000 certified bilingual teachers and 34,000 teachers certified to provide appropriate English language training (see Figure 4, left panel). This meant that only about one-third of all English learners had a fully certified teacher.[31]

Today, because of the growth of English immersion programs and the reduction of bilingual education programs brought about by Proposition 227, the number of teachers who hold credentials to work with English learners has grown dramatically. For example, the number of teachers with English Language Development (ELD) and SDAIE training has increased to 50,122 (see Figure 4, right panel). Another 11,995 teachers have been "grandfathered" into the category of CLAD teachers through provisions of SB1969, which allows experienced teachers to receive certification through staff development training or college course work. Added to this number are 10,690 teachers with BCLAD and other bilingual credentials. On paper, it appears that among those teachers in California who instruct English learners, a significant number (52 percent) have received some kind of preparation in instructing English learners. Unfortunately, this prepa-

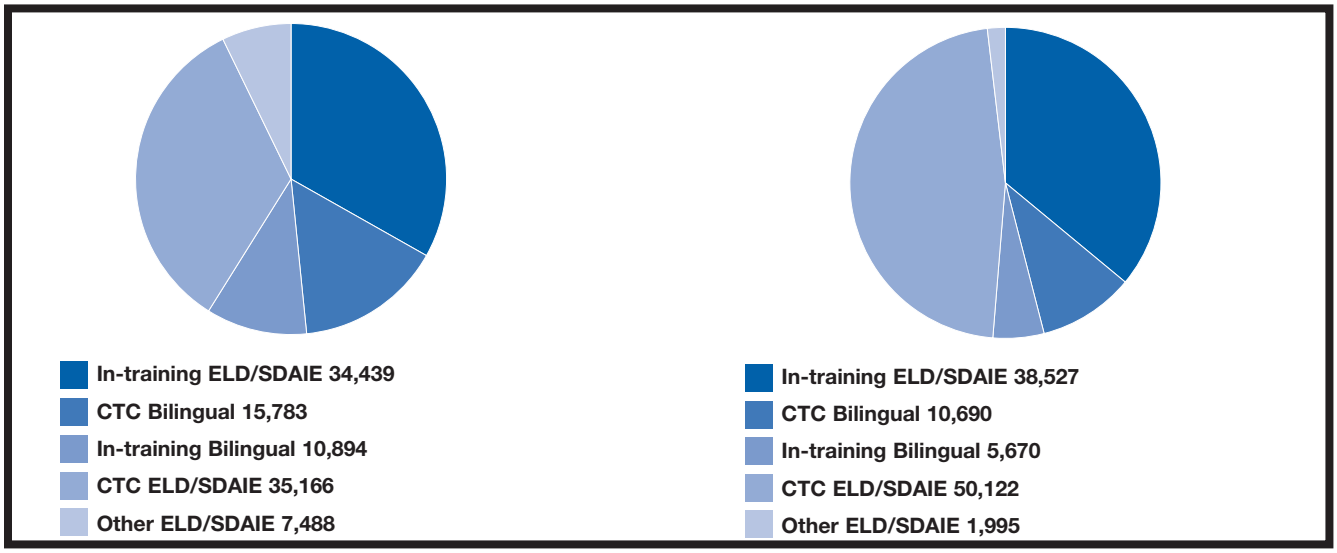

Figure 4. Number of Teachers Providing Instructional Services for English Learners by Certification, Before and After Proposition 227

Note: CTC teachers are teachers who hold valid certificates for the designated type of instructional service from California Commission for Teacher Credentialing (CTC). ELD/SDAIE teachers hold certificates to teacher English Language Development (ELD) or Specially Designed Academic Instruction in English (SDAIE). Other teachers hold an SB1969 certificate or CDE approved district certificate.

Source: California State Department of Education, *Language Census Summary Statistic, 1997-98* and (Sacramento, California: author). Retrieved November 8, 1999 from the World Wide Web: http://www.cde.ca.gov/demographics/reports/statewide/lcsum98.htm;California State Department of Education, *Language Census Summary Statistic, 1998-99* and (Sacramento, California: author). Retrieved November 8, 1999 from the World Wide Web: http://www.cde.ca.gov/demographics/reports/statewide/lcsum99.htm.

ration is often cursory and only sufficient to make a teacher aware of what he or she does not know. Under SB1969, CLAD certification can often be acquired with only forty-five hours of relevant training.[32] Moreover, students often are not assigned in their student teaching to the teachers who have been prepared to teach them. This is due, in large part, to the unequal distribution of qualified teachers across schools and districts. Given the teacher shortage in the state, the best prepared teachers can choose to take positions in the suburbs and in districts with less challenging populations, forcing the less well-prepared teachers into the inner cities and the schools with high proportions of poor students and English learners.

A recent review of middle school and secondary programs for English learners points out the acute problem of under-preparation of CLAD-credentialed teachers to meet the needs of English learners, especially in math and science.[33] Because these classes are "gatekeepers" for college preparatory coursework, students who do not do well in them are typically assigned to a general course of study that does not provide them with the option of entering a four-year college. This can have life-altering consequences for these students. A similar problem exists in that CLAD-credentialed English teachers often do not utilize their classes to prepare English learners for the academic requirements of subject areas.

The present crisis in providing English learners with fully qualified teachers has been exacerbated by recent reforms, particularly class-size reduction. A recent early evaluation of class-size reduction in California found that it increased the disparities in the numbers of qualified teachers between schools with large concentrations of English learners and schools with small concentrations of English learners.[34] For example, the percentage of teachers not fully credentialed in schools with the least number of English learners (less than 8 percent) only increased from .2 percent in 1995-96 to 4.2 percent in 1997-98 (see Figure 5). However, the percentage in schools with the greatest proportion of English learners (40 percent or more) increased from 1.8 percent to 22.3 percent over the same two-year period. As a result, schools with the most English learners benefited the least from class-size reduction, at

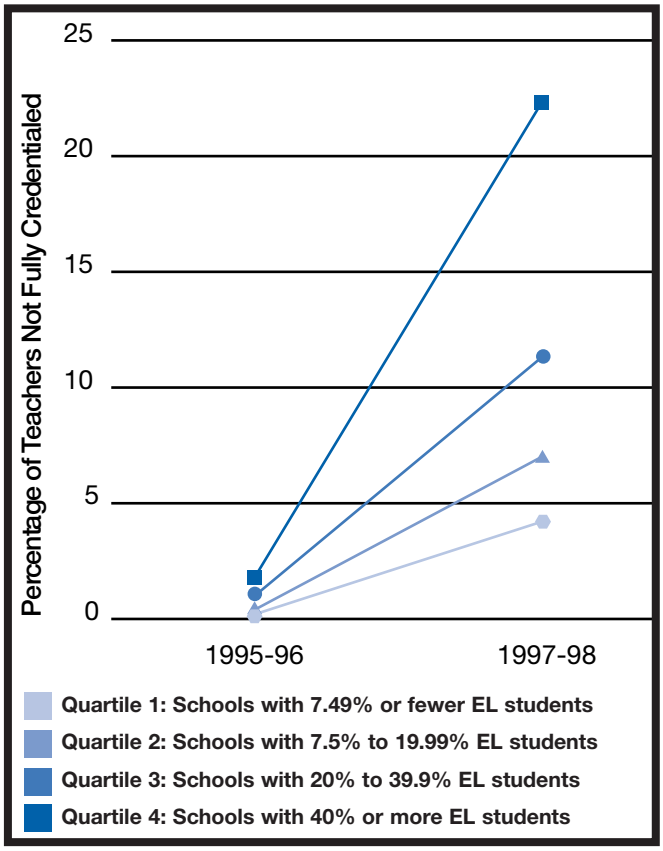

Figure 5. Percentage of Publick K-3 Teachers Not Fully Credentialed by School Quartiles of English Learners: 1995-96 and 1997-98

Source: George W. Bohrnstedt and Brian M. Stecher (Eds.), *Class Size Reduction in California: Early Evaluation Findings, 1996-1998* (Palo Alto: American Institutes for Research, 1999), Table D.31.

least in terms of access to fully credentialed teachers.[35]

Although Proposition 227 had no statutory effect on the credentialing of bilingual teachers (BCLAD), the issue has been raised whether certified bilingual teachers are still needed or desirable in a state that has placed rigid restrictions on the provision of bilingual education. In a somewhat ironic twist, it may be that bilingual teachers are more necessary now than under the conditions that existed prior to the passage of the initiative. Structured English immersion, the instructional approach recommended by 227 language, is an approach that actually relies on a teacher's knowledge of the students' primary language. While the children are usually not instructed in their primary language, past studies have nevertheless demonstrated that this approach is most effective when it incorporates a significant amount of primary language support to ease the students into the English-only curriculum. Moreover, bilingual teachers credentialed in California possess a body of knowledge about second language acquisition and the pedagogical tools that can enhance it that most non-bilingual teachers do not have.[36] At a time when there is so little direction being provided to teachers to help them with English learners and their primary language resources, this skill base of bilingual teachers may be especially important. There is also a growing awareness of the connection between parent involvement in schooling and children's academic achievement, pointing up the critical importance of home-school communication.[37] Without a teacher who speaks the language of the home, direct communication is not likely to occur. Thus, while the instructional methods of teachers may change under the new law, the importance of understanding children's educational needs in conjunction with their linguistic development and communicating with their families does not. However, the perception that bilingual teachers may no longer be needed in California is likely to negatively affect both the supply and demand of such teachers for the state's English learners.

The Educational Achievement of English Learners

Learning English is only one of the challenges facing English learners. The other is for them to succeed in all the other academic arenas of school. How are English learners in California doing in school? For many people inside and outside of the educational system, both in California and in the nation, achievement in school is best represented by one thing—scores on standardized tests. But as pointed out in the chapter on student performance, scores on standardized tests are not necessarily the best way nor should they be the only way to gauge the educational achievement of students.

This is especially true in the case of English learners because most existing national and state assessments are conducted in English. Because English learners are not yet proficient in English, such assessments may not accurately reveal the subject matter knowledge of English learners. A recent report by the National Research Council on the use of testing for tracking, promotion, and graduation posed the issue this way: "The central dilemma regarding participation of English-language learners in large-scale assessment programs is that, when students

are not proficient in the language of assessment (English), their scores on a test given in English will not accurately reflect their knowledge of the subject being assessed (except for a test that measures only English proficiency)."[38]

California has responded to this dilemma by exempting English learners from taking the two English-based state proficiency tests that are part of California's Standardized Testing and Reporting (STAR) program—the Stanford 9 achievement test and the STAR augmentation tests—if they have been enrolled in a California school for less than twelve months.[39] Instead, Spanish-speaking students enrolled less than twelve months are required to take the Spanish Assessment of Basic Education (SABE). [40] Based on existing research evidence, this policy means that English-based test scores for English learners in California will tend to understate their knowledge of subjects other than English.[41]

Another problem is that scores on standardized tests are typically reported as national percentile ranks, which only rates the performance of students to a relative standard—the performance of other students—rather than to a fixed standard that actually reveals what students know. This method of ranking ensures that some portion of students, regardless of what they know, will be ranked low. Nonetheless, this is the most common way of reporting test score results, which almost inevitably places English learners toward the bottom.

For example, in the 1999 statewide test program, English learners scored considerably lower than English-only students in the Stanford 9 reading and math tests. Among fourth grade students, for example, only 11 percent of English learners scored at the national average (50th percentile) in reading and 21 percent at the national average in math, compared to 53 in reading and 51 percent, respectively, for English-only students (Figure 6, top panel). Similar disparities existed for students in grades seven and eleven.

In 1999, California students were also tested, albeit in a very limited way, on their knowledge of the newly adopted California academic content standards. Unlike national exams like the Stanford 9, these tests were specifically designed to test students' knowledge in the subject areas that the state feels are most important for students to know. In addition, the only comparisons possible are between different groups of California test takers, not a national population. Results on the math portion of the 1999 tests are shown in the bottom panel of Figure 6. This time, the comparisons suggest that English language learners are much closer in terms of performance to English proficient students, although they still score below them at all grade levels.[42]

But even these comparisons do not provide a complete picture of the achievement of language minority students. These comparisons only focus on the achievement of language minority students who are not yet proficient in English (English learners) while ignoring the achievement of language minority students who are proficient in English. In other words, the comparisons do not account for those who enter the schools as fluent English speakers or for those who become fluent while in schools and hence are redesignated as fluent English proficient (FEP). To fully judge the performance of language minority students and the programs that are designed to teach them, it is important to examine both the performance of students who are still learning English and the

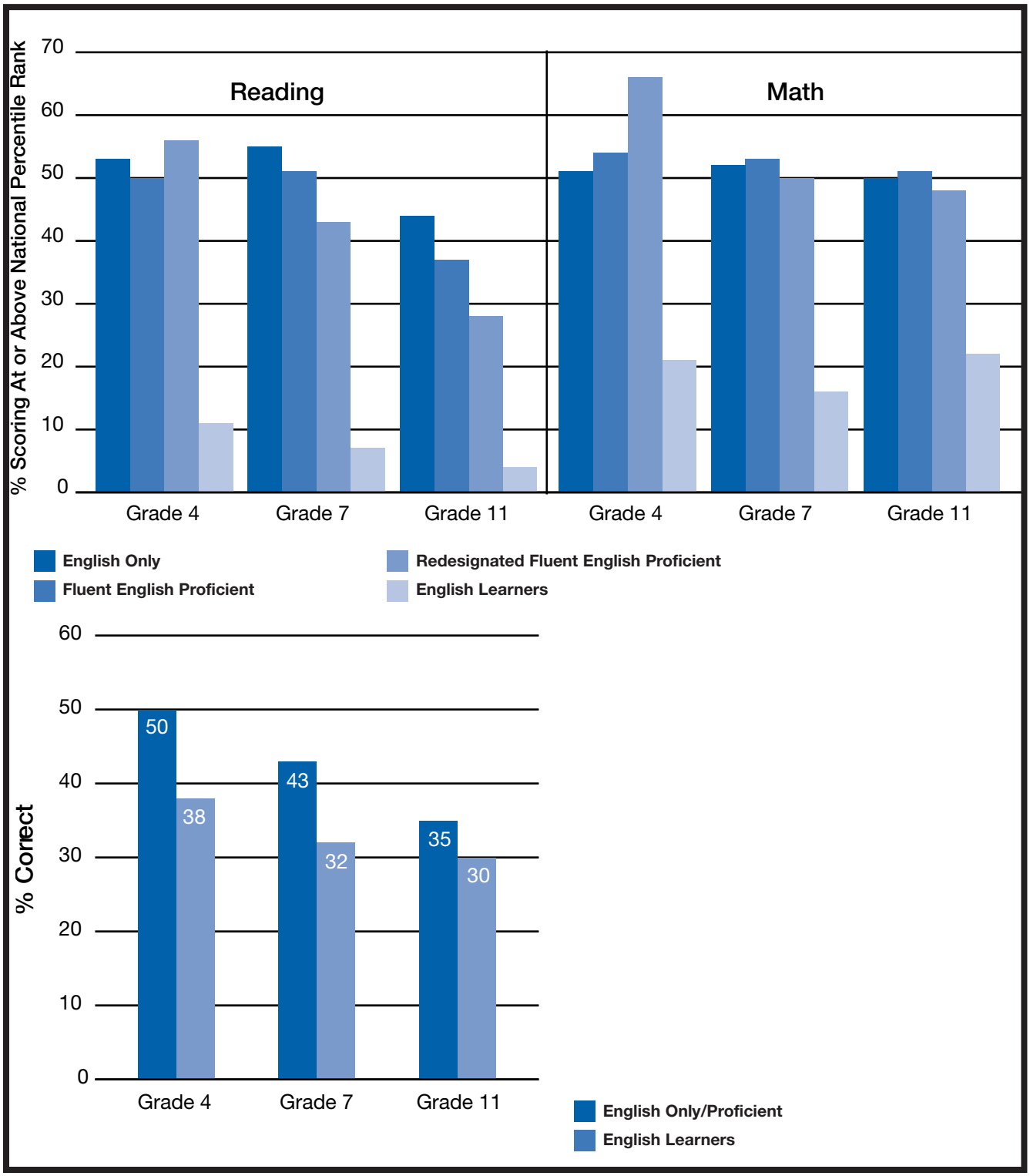

Figure 6. 1999 State SAT-9 Reading and Math and STAR Augmentation (Math) Test Scores by Language Background

Source: California State Department of Education, California Standardized Testing and Reporting (STAR),1999: State Reports (Sacramento, California: author). Retrieved November 30, 1999 from the World Wide Web: http://star.cde.ca.gov/star99/reports/English.html and http://207.87.22.181/STAR/.

performance of students who have become fully proficient in the language.

California has just released Stanford 9 test scores of fluent English proficient students separately from English-only (native English speakers) students. These results show that, in general, both fluent English proficient and redesignated English proficient students score as high or higher on standardized achievement tests in math as native English speakers (Figure 6, top panel). In reading, fluent English speakers score similarly to native English speakers in the lower grades, but score lower in the upper grades, which again supports the earlier claim that English learners have a considerably harder time acquiring more advanced, academic English in the upper grades.[43]

These results suggest that if all English learners could become proficient in English, then their achievement would be at least comparable to that of other students. This conclusion may be simplistic, however, because it is based on two related beliefs. One is that the reason English learners have lower levels of educational achievement is primarily because of their lack of English skills. The other is that non-English speakers will demonstrate much higher achievement once they learn English. But existing research questions both beliefs.

A recent study provides a good illustration. The study examined the influence of language background and other factors on the 1998 Stanford 9 test performance for 26,126 second, third, and fourth grade students in eight

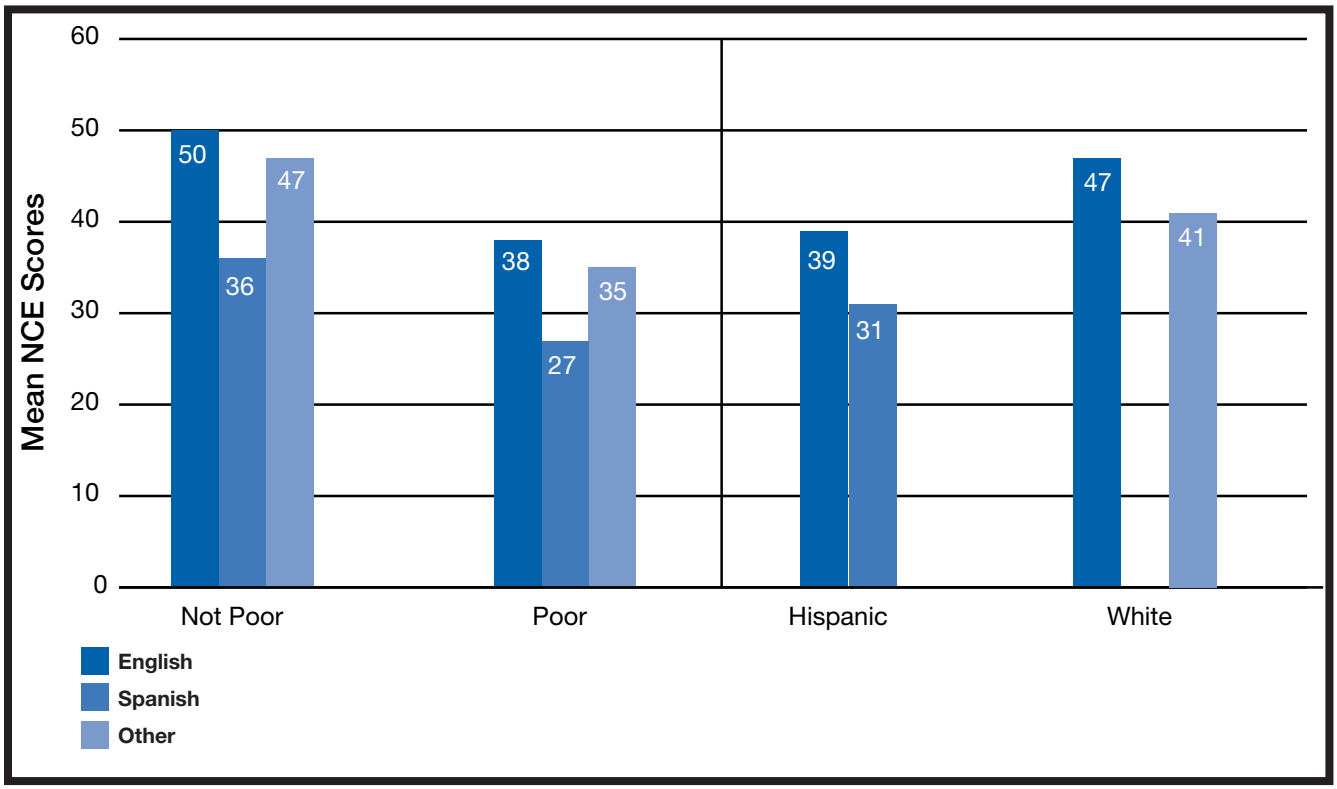

Figure 7. 1998 SAT-9 Reading Scores by Language Background and Poverty, Hispanics and Whites: Eight Southern California School Districts

Source: Douglas E. Mitchell and Ross Mitchell, *The Impact of California's Class Size Reduction Initiative on Student Achievement: Detailed Findings from Eight School Districts* (Riverside: California Educational Research Cooperative, 1999). Available on the World Wide Web: http://cerc.ucr.edu/publications.

Southern California school districts.[44] First, the study examined the independent effects of two factors—language background and poverty—on student achievement (see Figure 7, left panel). These results show that poverty affects the achievement of all students regardless of their language background. Because the majority of English learners are poor, it means that they are at a particular disadvantage in school. Next, the study examined the impact of language background and ethnicity on student achievement (see Figure 7, right panel). These results show that even Hispanic students from English-speaking backgrounds had significantly lower test scores than Whites from English-speaking backgrounds. This suggests that something other than English proficiency must be accounting for those differences.xlv It further suggests that while improving the English proficiency of English learners will improve their academic achievement, English proficiency alone is unlikely to raise their achievement to the levels of White, native-English speakers.

Prospects for the Future

California has passed a number of major reforms in recent years that are only now beginning to be implemented. Many of these reforms are likely to have an impact on the future schooling of English learners. Furthermore, these reforms raise many issues that will need to be resolved.

For example, the full impact of Proposition 227 on California's English learners is still not known. However, early indications are that most children will not transition successfully from structured English immersion to mainstream English classes within one year. With the repeal of the reclassification guidelines, what constitutes readiness for transition to English-only is an uncertain and highly controversial issue. The state department of education is currently drafting guidelines under the authority of Title 5 of the California Education Code to help districts and schools make these decisions.

New legislation on pupil promotion and retention (AB1626, Chapter 742, 1998) requires that students who are at risk of being retained because of failure to meet grade-level standards be provided additional educational services, including supplemental instruction and mandatory summer school. It is also noted in the legislation that students who are not proficient in English should not be retained solely on the basis of language handicap. It appears, however, that since English learners are likely to be at high risk of failing to meet educational standards, additional services will need to be provided for them. The costs and logistics involved in providing these services for large numbers of English learners have not been fully considered either by the state or by school districts. Yet research has found that retention alone is an ineffective and costly means by which to improve student performance,[46] so provision of supplementary services will ultimately be a less expensive response to the dilemma.

High school exit examinations represent another area of educational reform with potentially large consequences for English learners. The numbers and proportions of EL students are greatest in the early grades, and for these younger students there may be sufficient time to intervene so that the possibility of failing to attain a high school diploma in spite of having

completed all other high school requirements can be averted. However, approximately one-third of EL students are found in the secondary schools (see Table 1), where there is little time to gain the full English fluency and sufficient command of the secondary curriculum that are needed to pass the high school exit exam in English. This examination is only now being developed for students who plan to graduate in 2004, but the repercussions could be severe for English learners if an appropriate solution is not found to accommodating the testing needs of these students.[47]

Legislative efforts to extend the school year by reducing teachers' out-of-class time for professional development has "face validity," but may in fact be shortsighted during this time when teachers, many of them under-qualified, are grappling with so many increased performance demands. In a recent survey conducted by the department of education on the impact of Proposition 227, schools cited professional development to help teachers teach English learners as one of the most highly unmet needs.[48] The University of California study cited earlier found no instance in which teachers had been provided with professional development geared specifically to the instruction of reading for English learners.

Assessment of English learners will also remain a difficult and controversial issue for some time to come. Currently, all English learners who have been in school for at least twelve months must be tested in English on the STAR test annually. Many districts and parents have expressed strong concerns about the ways in which this testing may affect the students and their records. However, we have seen that the most immediate impact of this testing appears to be on instruction. Teachers, whether in bilingual or SEI classrooms, expressed concern about their students being tested prematurely in English and therefore were anxious to focus on oral fluency in English rather than broader literacy skills. As one researcher put it, "language and literacy are rarely tools for learning but rather English language learning (oral fluency) is becoming the target of instruction."[49] The impact of this shift in instructional emphasis and student outcomes should be monitored to assess its short-term and long-term effects on the development of literacy skills for English learners.

A related issue is the assessment of English Language Development (ELD) for English learners. While ELD standards have recently been adopted by the state board of education, and legislation passed in 1997 (AB748) required that a test be developed that allowed for the assessment of ELD standards, the development of an appropriate and relevant test has just begun. Many scholars believe that it is critical to monitor this early acquisition of English skills in order to prevent failure later when children are expected to meet mainstream English curricular demands; however, there is by no means widespread agreement on this issue.[50]

Finally, we find no issue more compelling or more urgent than the need to recruit, retain, and strengthen the skills of teachers who serve English learners. Particular attention also needs to be paid to the competencies of middle and high school teachers who are often overlooked in the discussions on teacher preparation. However, given the current teacher shortages, the increasing numbers of English learners, and the numerous reform ini-

tiatives with which schools and districts are dealing, it is not clear where the will or the resources will come from to seriously address this problem. Certainly, it appears that both the state, through various incentive funding schemes like sign-up bonuses and scholarships, and its postsecondary institutions, through expanded teacher education and professional development programs, will need to rise to the challenge. K-12 schools alone cannot meet these enormous challenges.[51]

In summary, California faces a number of challenges in trying to improve the schooling conditions and learning outcomes of English learners. As their numbers increase, the future success of all California's current reform efforts will be impacted by the state's ability to successfully meet these challenges.

Notes

1. We would like to thank Richard Dúran, Eugene García, and Barbara Merino for comments on an earlier version of this paper.

2. Prior to 1998, the State of California identified such students as Limited English Proficient (LEP). But a recent report on the schooling of English learners by the National Research Council suggested using new terminology—English-language learners. The State of California adopted the term English learner (EL) student in 1998. See Diane August and Kenji Hakuta, Improving Schooling for Language-Minority Children (Washington, DC: National Academy Press, 1997), 1.

3. See August and Hakuta, Improving Schooling; Patricia Gándara, Review of Research on the Instruction of Limited English Proficient Students (Santa Barbara: University of California Linguistic Minority Research Institute, 1997); Catherine Snow, M. Susan Burns, Peg Griffin (Eds.), Preventing Reading Difficulties in Young Children (Washington, DC: National Academy Press, 1998).

4. U.S. Bureau of the Census, Nativity and Parentage of the Population for Regions, Divisions, and States: 1997 (Washington, D.C: U.S. Bureau of the Census, 1999). Retrieved from the World Wide Web: http://www.census.gov/population/www/socdemo/foreign/foreign98.html.

5. Most immigrants want to learn English and do become proficient in English over time. But their opportunities for learning and using English vary widely due to such factors as social class and place of residence. See Ruben G. Rumbaut, "The new Californians: Comparative research findings on the educational progress of immigrant children." in Ruben G. Rumbaut and Wayne A. Cornelius, eds, California's Immigrant Children: Theory, Research, and Implications for Educational Policy (San Diego, CA: Center for U.S.-Mexican Studies, University of California, 1995), 17-69.

6. These questions include the child's native language and the language used by the parents and child at home.

7. The most common tests are the Language Assessment Scales (LAS), the Idea Proficiency Test (IPT), and the Bilingual Syntax Measure (BSM).

8. The levels of proficiency that must be demonstrated vary by age or grade level—the older the student, the more demanding the proficiency tasks that must be demonstrated to be classified as fluent English proficient. Proficiency levels are not directed related to the proficiency of native-English speakers, but rather to levels of proficiency that would be comparable to an average native-English speaker of a similar grade.

9. See California Department of Education, Language Census, 1999: Summary Report. Retrieved October 15, 1999 from the World Wide Web: http://www.cde.ca.gov/demographics/reports/statewide/lcsum99.htm.

10. See California Department of Education, Demographic Reports. Retrieved September 23, 1999 from the World Wide Web: http://www.cde.ca.gov/demographics/reports/statewide/ethstu.htm and http://www.cde.ca.gov/demographics/reports/statewide/redes98.htm.

11. In response to the Proposition 227 Task Force report, the State Superintendent has convened an advisory committee to re-examine this issue and make recommendations on altering them.

12. For further discussion of this issue, see Patricia Gándara and Barbara Merino, "Measuring the Outcomes for LEP Students, Test Scores, Exit Rates, and Other Mythological Data," Education Evaluation and Policy Analysis 16 (1994): 320-338.

13. Kenji Hakuta, Yuko Goto Butler, and Daria Witt, How Long Does It Take English Language Learners to Attain Proficiency? (Santa Barbara: UC Linguistic Minority Research Institute, forthcoming).

14. Douglas E. Mitchell, Tom Destino, and Rita Karam, Evaluation of English Language Development Programs in the Santa Ana Unified School District (Riverside: California Educational Research Cooperative, University of California, Riverside, 1997), VI-24.

15. August and Hukuta, Improving Schooling; Gándara, Review of Research; Wayne P. Thomas and Virginia Collier, School Effectiveness for Language Minority Students (Washington, D.C.: National Clearinghouse for Bilingual Education, 1997)

16. Robin Scarcella, Academic English: A conceptual framework. Draft discussion paper. (Irvine, CA: University of California, Irvine, 1999).

17. Scarcella, Academic English.

18. California State University, Systemwide Remediation Rates – Fall 1998. Retrieved November 18, 1999 from the World Wide Web: http://www.asd.calstate.edu/remrates98sys.htm.

19. Lily Wong Fillmore and Catherine Snow, "What Educators-Especially Teachers-Need to Know about Language: The Bare Minimum." Working paper prepared for the U.S. Department of Education's 1999 Regional Conferences on Improving America's Schools, 1999. Retrieved October 15, 1999 from the WWW: http://www.ncbe.gwu.edu/iasconferences/1999/institutes/lep/index.htm

20. The language of the proposition states that structured English immersion (SEI) programs are to be conducted "nearly all" in English for a period of time "not normally intended to exceed one year" except where parents explicitly request bilingual services. Once children are transitioned out of SEI, their instruction is to be provided "overwhelmingly in English," a phrase that is open to considerable variation in interpretation.

21. California State Board of Education, Policy 98-04. Educational Programs and Services for English Learners. Adopted October 10, 1998.

22. See, for example, Kevin Clark, From Primary Language Instruction to English Immersion: How Five California Districts Made the Switch (Washington, D.C.: Institute for Research in English Acquisition and Development, June 1999).

23. Kenji Hakuta, "What legitimate inferences can be made from the 1999 release of SAT-9 scores with respect to the impact of Proposition 227 on the performance of LEP students?" Retrieved November 17, 1999 from the World Wide Web: http://www.stanford.edu/~hakuta/SAT9/index.htm.

24. Included in this team were Eugene Garcia, Tom Stritikus, Julia Curry-Rodriguez (UC Berkeley); Kris. Gutierrez (UCLA); Julie Maxwell-Jolly and Patricia Gándara (UC Davis).

25. Patricia Gándara and Julie Maxwell-Jolly, First year effects of the Implementation of Proposition 227 in 16 California School Districts, Education Policy Brief, (Santa Barbara & Davis: University of California, Linguistic Minority Research Institute, forthcoming).

26. For those administrators interested in continuing to provide bilingual programs, there are essentially three options available: (1) to seek parental waivers, which most of these districts did; (2) to interpret the meaning of "nearly all English" or "overwhelmingly in English" liberally, such as including significant amounts of primary language lesson "previews" or "reviews" as well as actual instruction in the primary language (a few of the districts in this sample also adopted this strategy); and (3) to seek charter school status, a more lengthy process that had not yet been initiated by any of the schools in the districts in this sample.

27. California Department of Education, Proposition 227 Survey, Interim Report, May 12, 1999.

28. Some of these classrooms had been part of an earlier study on literacy practices.

29. California State Board of Education, Policy 98-04, Educational Programs and Services for English Learners. Adopted October 10, 1998; California Commission on Teacher Credentialing, Serving Limited English Proficient Students, Memorandum (July, 1999).

30. For a summary of the CTC requirement for teaching English learners, see the CTC Publication CL-622 available from their website at: http://www.ctc.ca.gov/credentialinfo/leaflets/cl622/cl622.html.

31. As reviewed in the chapter, Teachers and Teaching, research evidence demonstrates that teacher certification and expertise has a positive impact on student achievement in general. However, existing studies have not examined whether teaching credentials have a positive impact on the educational achievement of English learners specifically. This is a critical topic for future research.

32. Patricia Gándara and Julie Maxwell-Jolly, Preparation for Teaching California's Culturally and Linguistically Diverse Students: The Crisis of Teacher Quality and Quantity (Santa Cruz, CA: The Center for the Future of Teaching and Learning, forthcoming).

33. Barbara J. Merino, "Preparing secondary teachers to teach a second language: The Case of the United States with a focus on California," In Christian J. Faltis and Paula M. Wolfe, eds., So much to say: Adolescents, bilingualism and ESL in the secondary school (N.Y.: Teachers College, Columbia University, 1999), 225-254.

34. This change was largely due to high-concentration schools not being able to effectively compete for better-qualified teachers. See George W. Bohrnsteadt and Brian M. Stecher, Class-size reduction in California: Early Evaluation Findings, 1996-1998 (Palo Alto: American Institutes for Research, June 1999), 73-77.

35. The report notes that similar disparities occurred in schools with high concentrations of low-income students.

36. Robert Milk, Carmen Mercado, and Alexandria Sapiens, "Rethinking the education of teachers of Language Minority children: Developing reflective teachers for changing schools." NCBE Focus: Occasional Papers in Bilingual Education, Number 6 (Summer 1992). Available on the World Wide Web: http://www.ncbe.gwu.edu/ncbepubs/focus/focus6.htm.

37. Oliver Moles, "Synthesis of research on parent participation in children's education," Educational Leadership 40 (1982): 44-47; Annette Lareau, "Social class differences in family-school relationships: The importance of cultural capital" Sociology of Education, 60 (1987): 73-87;

38. Heubert, Jay P. and Robert M. Hauser, High Stakes: Testing for Tracking, Promotion, and Graduation (Washington, D.C.: National Academy Press, 1999), 214.

39. These regulations are spelled out on the California Department of Education's STAR web page at: http://star.cde.ca.gov/star99/index.html.

40. Other states have used a variety of policies for exempting or accommodating English learners. For a discussion of these see Heubert and Hauser, 1999, 215-218. One school district in California has successfully challenged the existing state policy and has exempted all English learners who have been in the district for less than 30 months from taking the STAR English-based tests.

41. See August and Hakuta in Improving Schooling, 1997,120-122.

42. This further buttresses the argument that assessments of subject matter knowledge are highly language dependent.

43. These findings are consistent with other studies that find fluent English speakers often do as well or better than native English speakers in school. See, for example, Russell W. Rumberger and Katherine A. Larson, "Toward explaining differences in educational achievement among Mexican-American language minority students." Sociology of Education 71 (1998): 69-93.

44. Douglas E. Mitchell and Ross Mitchell, The Impact of California's Class-size reduction Initiative on Student Achievement: Detailed Findings from Eight School Districts (Riverside: California Educational Research Cooperative, 1999). Available on the World Wide Web: http://cerc.ucr.edu/publications.

45. For a discussion of other factors that affect the achievement of English learners, see: August and Hakuta, Improving Schooling; Rumberger and Larson, "Toward explaining.."; National Research Council, Panel on High-Risk Youth, Losing generations: Adolescents in high-risk settings (Washington, D.C.: National Academy Press, 1993).

46. Heubert and Hauser, 1999.

47. The National Research Council committee on high stakes testing cautions against an over-reliance on test scores for graduation especially in the case where students may not have been given an adequate opportunity to learn the requisite material. See Heubert and Hauser, High Stakes.

48. California Department of Education, Proposition 227 Survey, Interim Report, May 12, 1999.

49. Gándara and Maxwell-Jolly, forthcoming.

50. For a discussion of this issue by the profession organization, ESL Standards for Pre-K-12 Students (Washington, D.C., 1999).

51. The implementation of recent State legislation regarding improvements in the assessment of teachers and in the certification of teacher education programs will contribute to these challenges.

Chapter 4

School Finance in California: Does History Provide a Sufficient Policy Standard?

Neal Finkelstein, William Furry and Luis Huerta

Introduction

Chapter One describes education policies in California that are in some ways beginning to converge. Standards anchor the system, which is buttressed in a number of ways by explicit accountability mechanisms for districts, schools, teachers, and the students themselves. As shown in Chapter 7, measurement and assessment systems, still among the most difficult educational policy levers to manipulate, have gained some stability in recent years as yet rough but increasingly consistent tools that provide information about student performance and the system's progress.

Yet several glaring discontinuities in California education policy remain, especially in the area of financing. Policies concerning the financing of education must be far better arranged to support the educational plans that have evolved over the past fifteen years. We argue two central points in this chapter:

- The idiosyncratic history of school finance in California has over time left the discussion of "what does the money buy" disconnected from discussions of educational goals and practice. As obvious as it may seem, the issues of how money is raised, how money is spent, and who decides how to spend it are essentially connected to the quality of education.
- It is unlikely that even substantial adjustments to the existing school finance system can result in financing structures whereby the educational goals of the state are consistent with how resources are raised, allocated, and spent. Incremental reforms in the ways in which schools are financed will not yield a coherent set of policies.

In the chapter that follows, the context of K-12 education finance is discussed with a sharp focus on the current lack of alignment between state standards and other educational initiatives, and the resources needed for their effective implementation. For example, class size reduction, as has been evident over the past two years, has profound financing implications. The goal of hiring and retaining qualified teachers, as discussed in Chapter 6, has substantial financing implications. Specific types of remedial educational programming in reading and mathematics, too, have substantial cost implications. How can the education finance system in California better accommodate these needs, and at the same time be governed deliberately and rationally?

For some time, PACE has provided readers of *Conditions* with some basic descriptive charac-

teristics about the financing of schools. Here again, a brief introductory section provides relevant background and an update on the financing of schools. Next, a policy discussion is provided that links school finance to the current momentum of educational change in California. This section asks whether we are financing a standards-based reform effort, or some other historical conglomeration of educational principles. To think through the disconnection between finance and standards-based reform, we then explore the real constraints that are part of the current financing system: equity considerations, statutory considerations, governance, and the precedents that have been imposed by the courts. The middle of this chapter takes a look at the development of categorical funding over a thirty year history; this section tells an important story about how the education finance system has responded to educational needs over time, for better or worse. Finally, the chapter ends with a set of cautions related to new directions in school finance policy.

The Context of School Finance in California

As many policy analysts have commented over the past 20 years, California is a state where the convergence of court rulings, voter-initiated propositions, legislative activities, and economic cycles has created a complex system unlike any other in the United States. Many good descriptions of the history of school finance exist, and so in this chapter we will not pay extensive attention to describing the events that transpired over the past 30 years. PACE, in its 1994-95 edition of *Conditions*, provides a comprehensive history; EdSource, also, has made available an excellent synopsis of the policy history of school finance in California. Finally, Manwaring and Sheffrin, and Downes and Shah, among others, have provided extensive academic analyses and interpretations of the events that have led to the current day's discussion.[1] For our purposes in this chapter, we reiterate a few central policy constraints and data about the current finance system.

A Limited Selection of California's School Finance Policy Constraints

The *Serrano* Case. The policy constraints around school finance began with the 1971 California Supreme Court opinion in *Serrano v. Priest* (*Serrano* I). By 1998, legal cases had been brought in forty-three other states; in nineteen of them, state supreme courts found the school financing system to be unconstitutional.[2] In the *Serrano* case, the plaintiffs argued that education spending linked to property wealth generated unacceptable expenditure differentials between school districts. The California Supreme Court found that the state's school finance system, if the facts were as alleged, failed to meet the equal protection clauses of the California and United States Constitutions. The court opinion was based in part on the concept of fiscal neutrality, arguing that a school finance system based on property wealth was unconstitutional if an equal tax rate did not produce the same revenues per-pupil across all districts.[3] The case was remanded back to the state superior court level for trial, where it had been initially dismissed. This second segment of the litigation occurred between 1972 and

1974 and has been generally referred to as *Serrano* II.

The superior court judge in *Serrano* II specified that wealth-related differences in school funding must fall within a "band" of equality above and below the state average per-pupil funding, and that the amount should be considerably less than $100 per-pupil. Since 1974, the date of the *Serrano* II decision, the band with inflation adjustments has grown to approximately $335 on either side of the school district average per ADA of $3,785 (1997-98 figures reported by LAO, 1999).[4] This figure includes only state and local general purpose revenues; it does not include categorical funding or support from other miscellaneous sources. The Legislative Analyst reported that in 1997-98, approximately 98 percent of the state's school districts met the constraint set by the *Serrano* band.[5]

Proposition 13. Proposition 13, passed by the voters in June 1978, called for a new tax rate for residential, commercial and personal property based on acquisition value rather than market value. Initially, tax assessments were rolled back to 1975 property values, which marked the "base year" for all existing properties in the state. Recalculated property taxes were limited to one percent of the 1975 assessed market value, with increases limited to the lesser of two percent of assessed value per year or the current rate of inflation. Property can be assessed at market value only when sold, or when new construction has been completed.

The effect of Proposition 13 on education finance has been two-fold. First, by setting a maximum property tax rate of 1 percent, it eliminated the apparent inequities in local tax rates that had been the focus of the *Serrano* decision. At the same time, however, it broke the connection between local property taxation and support for schools by reducing the capacity of the property tax base to support schools in most districts. Since Proposition 13, the state has been required to substantially fund schools through the General Fund–just one-third of revenues for schools are raised locally. In effect, then, California's school finance system is centrally controlled. Requests for marginal increases in spending are made through the state legislative process and are not the decisions of local property taxpayers.[6] This change in the locus of decision-making has had substantial implications for increased state attention to education issues.

Revenue Limits. Following the *Serrano* decision, the legislature enacted a long-term equalization financing plan for schools in 1972 by inventing the "revenue limit." This was designed to provide foundation funding for schools. The first year of its implementation was in 1973-74. Each California district has a base revenue limit per-pupil, measured by ADA, from general state funds and local property taxes. Over time, inflation adjustments for revenue limits have been a significant policy issue as they have guided the rate at which the state has equalized spending per-pupil between districts. As a result, the history of revenue limit adjustments is complex and important as districts have sought the resolution of perceived inequities stemming from the administration of the policy.[7] Revenue limit worksheets, encompassing adjustments for cost of living, unemployment insurance, meals for needy pupils, summer school, longer school day and year, and other details, are difficult to follow and understand.

Equalization between districts has been relatively successful over the past twenty-five years and has relied in part on the adjustment to the revenue limit. Goldfinger describes several of the discontinuities in the equalization process that have been the result of legislated adjustments to the revenue limits. In each case, the *Serrano* band has acted as a default standard, placing enormous importance on the average per-pupil spending level in the state. As a consequence, substantial import is given to the relative funding level of districts between one another, and less to the absolute level of funding.

It is also important to remember that the calculation of the revenue limit is independent of federal and state categorical support which can account for more than 40 percent of funding for some districts. This point is further discussed below.

Proposition 98. In November 1988, the voters approved Proposition 98, which provides a funding guarantee for primary, secondary and community college education. Amendments to the proposition, including Proposition 111 (in 1990), have resulted in a funding floor for education with specific rules about how the funding guarantee should be upheld in high and low state revenue growth circumstances. Proposition 98 has resulted in some stability for education funding in California, although the funding floor was consistently interpreted as a funding ceiling in the economic downturn of the late 1980s and early 1990s. What seems clear about Proposition 98 is that it sets aside a fixed percentage (about 40 percent) of the state general fund for K-14 education, therefore pitting the interests of the state's schools and community colleges against those of higher education, health care, welfare, corrections, transportation, and other obligations of the general fund.

School Facilities Funding. California's student population continually exceeded the national average in annual growth throughout the last decade, and is expected to increase by an additional 15 percent (nearly 1 million additional students) over the next 10 years.[8] Combined with statewide efforts to reduce class sizes in elementary grades, local school districts have become burdened with demands for new facilities construction, maintenance and renovation. In California funding public school facilities is the responsibility of local school districts and county offices of education. The state does provide a portion of revenues through several state facilities programs, however school districts are expected to provide local funds in order to receive a proportion of state matching funds.[9]

In 1999, the California Department of Education estimated new construction needs for a five year period from 1998-2003 to cost nearly $17 billion.[10] Hard-pressed to fund necessary facilities projects, school districts have turned to issuing local general obligation bonds as a source of revenue to fund capital improvements. Passing local school bond measures for facilities expenditures has been a growing trend over the last decade. Since 1986, school districts have passed 420 school bond measures amounting to nearly $17 billion in revenues.[11] In 1998, the state sponsored Proposition 1A, a bond measure which amounted to $9.2 billion, with $6.7 billion reserved for K-12 and $2.5 billion for higher education.

The growth in the use of school bonds to fund facilities came in the wake of limitations set by Proposition 13 which imposed a proper-

ty tax rate cap of one percent, required a two-thirds voter approval rate for any local or state tax rate increase, and suspended the ability of municipalities to issue general obligation bonds. As school funding responsibilities shifted from the local to the state level, and as local budgets were constrained by an inability to raise revenue for local needs, school districts were unable to respond to the facilities needs of a growing student population—leaving aging buildings to deteriorate in disrepair.

In 1986 California voters approved Proposition 46, which amended the state Constitution to permit municipalities to increase property taxes beyond the one percent limit set by Proposition 13, and issue general obligation bonds to finance capital improvements for public services. Faced with a backlog of deferred maintenance costs and fewer discretionary funds to use for facilities and other general local needs, school districts began to rely on school bonds as a source to fund capital improvements.[12] However, a two-thirds majority of voters is still required to approve a property tax rate increase necessary for repayment of bonds.[13]

The effect of devolving the responsibility for funding new school construction and facilities improvements to the local level in conjunction with a constant reduction in local discretionary funds, contrasted with a school finance system controlled at the state level, has resulted in a two-fold uneven playing field. First, school districts which are successful in garnering the two-thirds vote necessary for passing a school bond measure will receive state matching funds for construction and likely meet local needs. However, school districts who are unable to pass a school bond measure or are unable to afford the indebtedness associated with repayment of a school bond measure, will not be able to receive matching capital improvement funds from the state, and are less likely to meet local needs.[14] Second—and most concerning in light of the *Serrano* decision which advanced the concept of fiscal neutrality—a low property wealth district will need to levy a higher tax rate in order to repay a bond of equal magnitude issued by a high property wealth district.

In effect, the same equalization efforts that were successfully applied to district revenue limits under court order, have not been applied to capital improvements funding. Thus, placing a substantially uneven fiscal burden on low property wealth districts in their efforts to provide adequate facilities for students.

The Current State of Education Finance

The picture of California's school funding system is made complete by a series of tables and charts that track California's funding history. As has been demonstrated by many analysts, California lags substantially behind other industrialized states in America and has had periods in recent years where school funding has not kept pace with inflation. For many years in the 1980s and 1990s it was factually accurate to criticize the level of financial support in California as nearly last in the nation. This is no longer true. Estimates vary, but California currently ranks somewhere between 30th and 37th in the United States on per-pupil expenditure, depending on the analysis used. A 1997-98 projection of per-pupil expenditure of $5584 placed California thirty-seventh in the United States.[15] For comparison, PACE reported in *Conditions of Education* in 1994-95 that California ranked 40th in the

nation. The contribution of lottery revenues to school funding has also been greatly misunderstood and accounts for a notably small additional revenue boost; in 1997-98, the lottery provided just over one percent of the budget for education in the state. Figure 1, below, shows the per-pupil funding for students in California from 1971 to the present. A 50-state comparison on several indicators follows, showing the relative ranking of California compared to other states in the nation.

As described in the following section, categorical funding has grown over the years to a level that approaches 39 percent of total funding in California's schools, about $9 billion. The distribution of these funds, purposely, is not uniform across districts or students and that distribution is complex from both the perspective of state and district policy structures. What is clear, and demonstrated below, is that categorical funding has always been intended to be supplementary—even as made clear by the *Serrano* court. As a result, the growth in categorical funding has evolved into a web of supplements—whatever the justification—that create instability in the central education funding structure. As we will see in the following pages, nearly every conceivable issue in education has a categorical program attached. In total, the proliferation has no coherence, is difficult to understand, lacks consistent accountability structures, and is not linked to the evolving education reform strategies in the state.

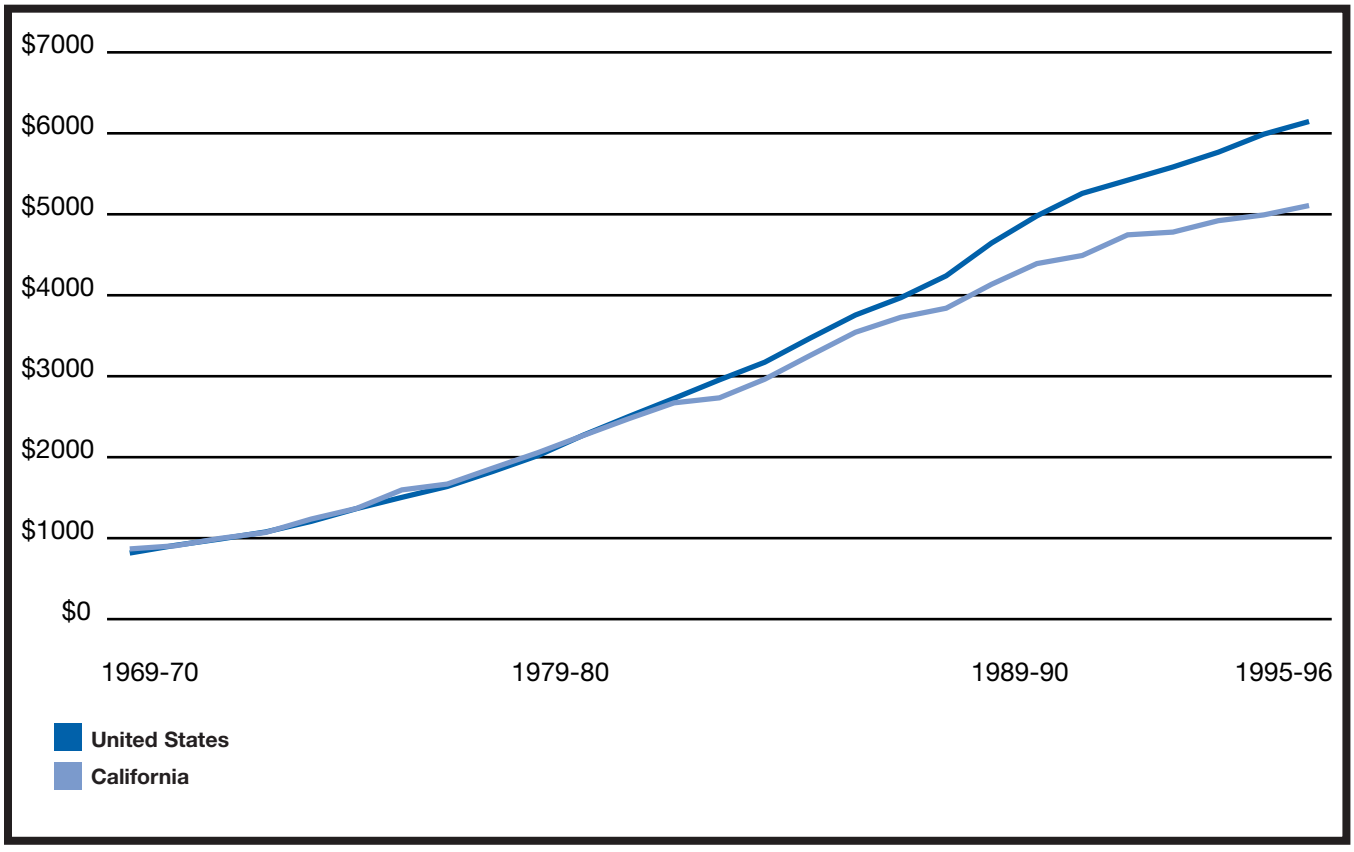

Figure 1. Expenditures per Pupil (in current dollars) in Average Daily Attendance in Public Elementary and Secondary Schools. California and the United States: 1969-70 to 1995-96

	Unadjusted education spending per student (1998)	Education spending per student, adjusted for regional cost differences (1998)	Education spending for every $1,000 in state wealth (gross state product) (1997)
Alabama	$4,780	$5,356	$36.32
Alaska	$8,337	$6,581	$44.80
Arizona	$4,593	$4,629	$35.67
Arkansas	$4,590	$5,268	$38.96
California	***$5,514***	***$4,939***	***$32.75***
Colorado	$5,519	$5,599	$33.00
Connecticut	$8,790	$7,635	$37.97
Delaware	$7,425	$7,255	$27.78
Florida	$5,579	$5,829	$35.64
Georgia	$5,587	$5,998	$35.32
Hawaii	$5,415	$5,430	$30.22
Idaho	$4,628	$5,029	$41.95
Illinois	$6,182	$5,991	$33.30
Indiana	$6,226	$6,661	$47.46
Iowa	$6,019	$6,823	$39.32
Kansas	$5,645	$6,311	$42.58
Kentucky	$5,539	$6,196	$36.44
Louisiana	$5,352	$5,989	$31.19
Maine	$6,614	$6,739	$49.47
Maryland	$6,678	$6,544	$39.56
Massachusetts	$7,642	$6,518	$33.21
Michigan	$6,979	$6,873	$48.43
Minnesota	$6,636	$6,767	$41.48
Mississippi	$4,291	$4,924	$34.86
Missouri	$5,523	$5,817	$36.49
Montana	$5,769	$6,349	$49.19
Nebraska	$6,021	$6,799	$39.13
Nevada	$5,219	$5,478	$30.58
New Hampshire	$6,493	$6,195	$35.27
New Jersey	$10,140	$8,801	$42.77
New Mexico	$4,961	$5,339	$37.53
New York	$8,808	$7,853	$40.44
North Carolina	$5,288	$5,763	$29.70
North Dakota	$5,098	$5,979	$36.22
Ohio	$6,178	$6,251	$38.93
Oklahoma	$4,794	$5,317	$41.04
Oregon	$6,205	$6,422	$35.82
Pennsylvania	$7,382	$7,202	$42.29
Rhode Island	$7,642	$6,930	$43.53
South Carolina	$5,276	$5,827	$40.32
South Dakota	$4,842	$5,667	$34.61
Tennessee	$4,767	$5,223	$29.08
Texas	$5,482	$5,815	$37.23
Utah	$3,632	$3,804	$40.24
Vermont	$6,672	$6,746	$53.09
Virginia	$6,023	$6,215	$34.48
Washington	$6,225	$5,995	$39.04
West Virgina	$6,189	$6,908	$51.34
Wisconsin	$7,123	$7,448	$45.91
Wyoming	$6,218	$6,790	$36.13
U.S.	$6,168	$6,168	$37.35

Table 1. Comparative Indicators on Measures of School Finance: California Compared to the Fifity States (1998)

Source: Selected Tables, Quality Counts 2000, Education Week, Volume XIX, Number 18, January 13, 2000

Description	Level	California's Rank Nationally
Unadjusted education spending per student (1998)	$5,514	33rd
Education spending per student, adjusted for regional cost differences (1998)	$4,939	47th
Education spending for every $1,000 in state wealth (gross state product) (1997)	$32.75	44th
Relative inequity in spending per student among districts	11.4%	22nd
Percent of annual education expenditure spent on instruction (1997)	60.6%	36th
Percent of total taxable resources spent on education (1997)	3.3%	41st

Table 2. California's National Ranking on Selected Measures Related to School Finance
Source: Selected Tables, Quality Counts 2000, Education Week, Volume XIX, Number 18, January 13, 2000

The combination of categorical support and revenue limit support ought to be coherent and be tied to what we best know about educational effectiveness. But as the pattern of categorical funding continues, it is essential, from the state level, to assess whether there is internal coherence to the linkage between finance and educational goals, as exemplified by California's evolving standards-based education reform agenda.

The Growth of Categorical Funding

In the past forty years the number of state categorical programs in public elementary and secondary education has grown from five to more than eighty. Why has there been such proliferation? Why are new programs being created every year in Sacramento, even before last year's new programs have been explained to the schools, much less implemented and evaluated? In an effort to inform and stimulate debate, we begin by outlining the history of categorical programs and making some observations about the process that produces them year after year.[16]

1959-1960 through 1965-1966: The Years of Stability

In the early 1960s, there were five categorical programs that accounted for only 8 percent of total State General Fund (SGF) allocations to school districts and county offices of education. The graybeards of categorical programs, all of which are alive and well after forty years (though Driver Training has had its ups and downs), are:

- Special Education
- Pupil Transportation
- Free Textbooks/Instructional Materials
- Children's Centers/Child Development
- Driver Training

During the seven year period from 1959-60 through 1965-66 only two significant additions were made to the original five. A program of funding for the Mentally Gifted (later called GATE—Gifted and Talented Education) was established in the early 1960s, and the first efforts were made in the field of compensatory education with the creation of a teacher training program funded at $900,000.

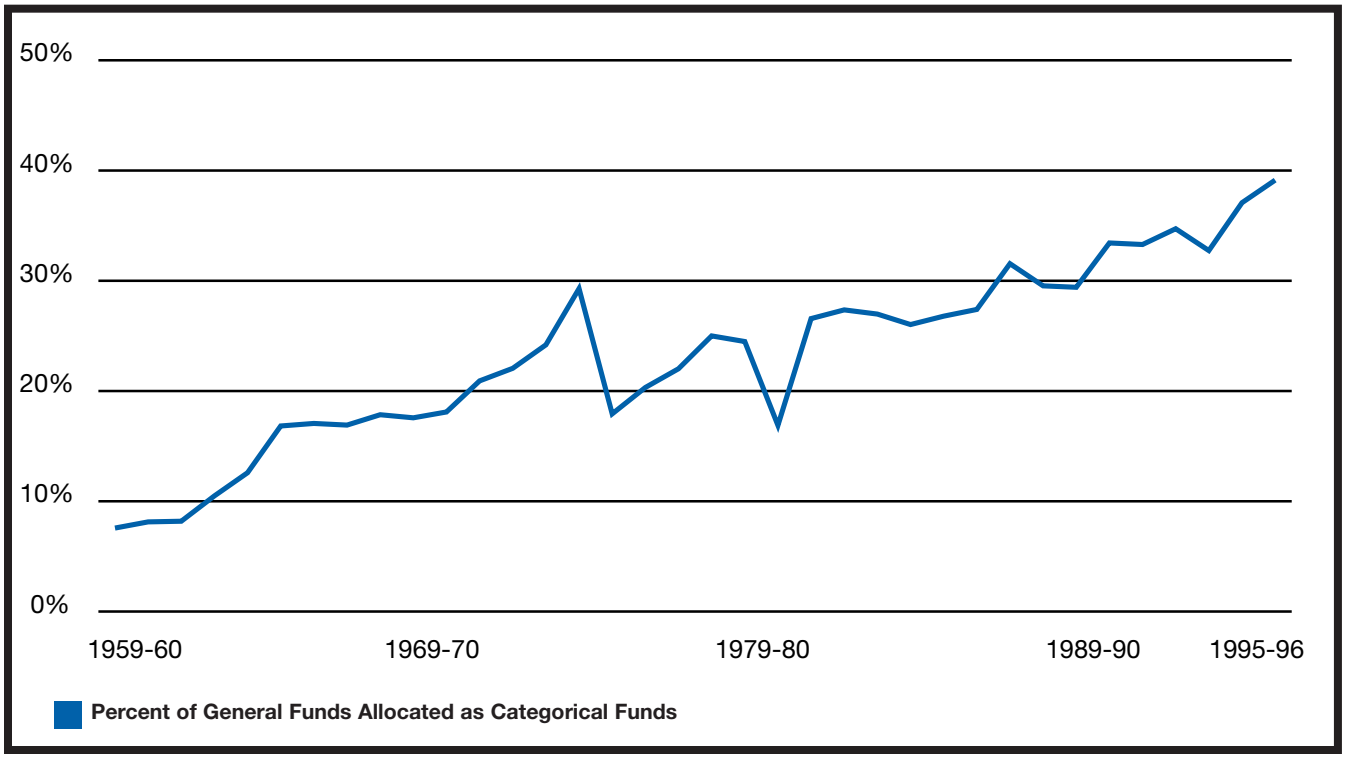

Figure 2. California's Growth in Categorical Funding, 1959-60 to 1998-99. Percent of State General Funds Allocated as Categorical Funds

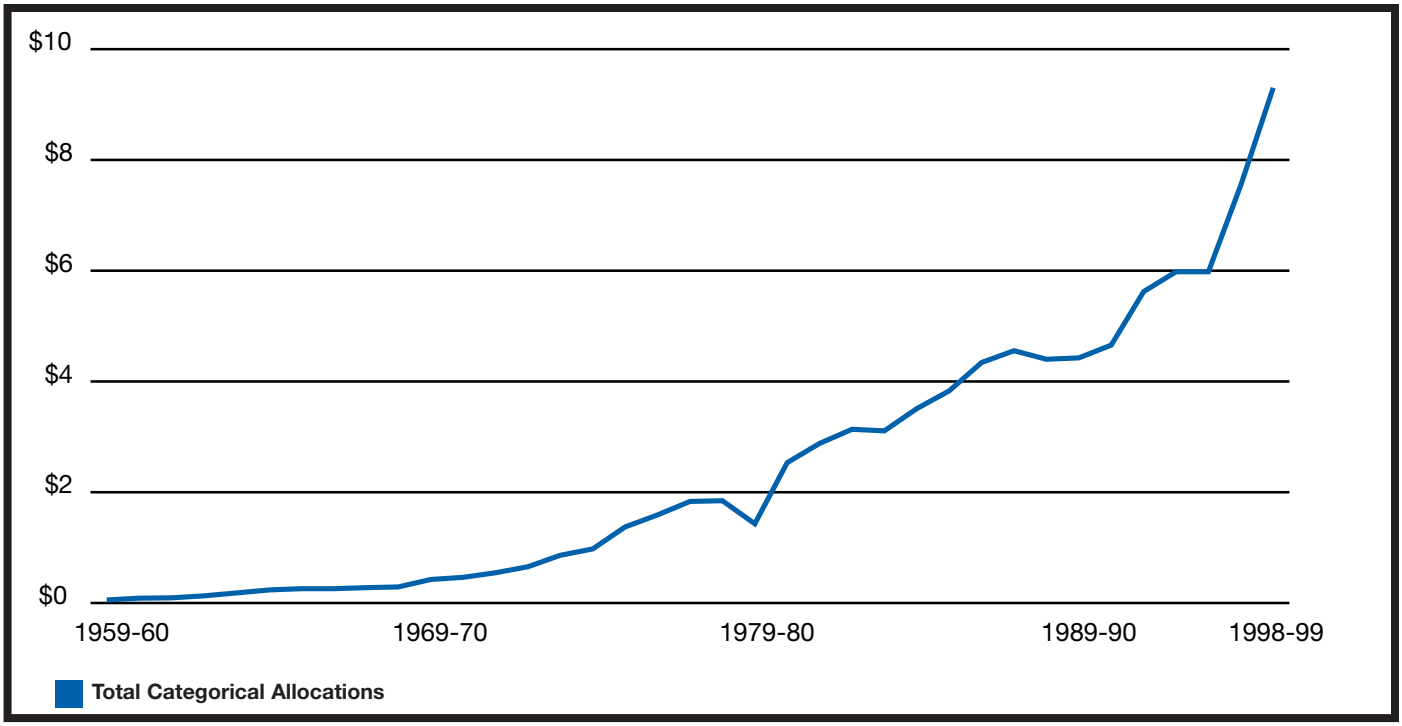

Figure 3. Expenditures in Billions (in current dollars) on Californian Categorical Funding 1959-60 to 1998-99

1966-67 through 1968-69: Potential for Growth

In just three years at the end of the sixties, categorical program funding doubled as a percentage of total SGF allocated to schools (increasing from 8.2 percent to 16.8 percent). While general funds appropriated to the schools increased 23 percent during this three-year period, funding for Special Education and for Children's Centers nearly doubled. Allocations for compensatory education were flat at about $10 million over the three years, but, interestingly, compensatory education included one of the first class-size reduction efforts, with more than $12 million allocated for this purpose.

Two of the most durable categorical programs ever established were given birth at this time:

- Miller-Unruh Reading (known originally as the Special Elementary School Reading Instructional Program)
- Demonstration Programs in Reading and Math (later renamed Demonstration Programs in Intensive Instruction)

Reflecting the power of the programs' authors, funding for Miller-Unruh leaped from $2 million in 1966-67 to more than $15 million two years later. The Demonstration Program in Reading and Math, which was started as a component of the compensatory education program, survived numerous assaults by the Legislative Analyst Office in the mid-1980's and continues to operate in the new millennium, although inflation has taken a toll on the amount of funding it receives.

1969-70 through 1973-74: Stability Ending With A Flourish

Total SGF allocations to schools grew less than 10 percent between 1969-70 and 1972-73. Categorical funding was fairly stable during these years, increasing slowly from 16.8 percent of SGF allocations to K-12 education in 1969-70 to about 18 percent in 1973-74. But 1973-74 saw a tremendous increase in state revenues, enabling a 42 percent increase in SGF dollars for public school education. Wilson Riles, first elected Superintendent of Public Instruction in 1970, found his opportunity, sponsoring two important new categorical programs in 1973:

- Early Childhood Education (initial funding of $24 million)
- Educationally Disadvantaged Youth ($81 million)

These programs were essentially offshoots and expansions of the old compensatory education program (established in 1965-66) which had limped along for nearly a decade with $10 million in annual funding. 1973-74 also witnessed the creation of Bilingual-Bicultural Education which grew from $4 million to $11 million and was eventually folded into the Economic Impact Aid program in 1978-79.

Meanwhile, the old stalwarts continued their steady growth: GATE reached $12.6 million in 1973-74; Driver Training achieved $16.4 million; Instructional Materials climbed to $24 million; Special Education (the largest of all categoricals) grew to $180 million; Transportation continued its steady ascent to

$35 million; and Miller-Unruh leveled off at $18 million.

1974-75 through 1978-79: Restructuring School Finance

From 1974-75 through 1978-79 funding for categorical programs more than doubled to nearly a billion dollars ($976 million). As a percentage of the SGF going to the schools, the categorical share peaked in 1977-78 at 29 percent. It then precipitously tumbled to only 17 percent in 1978-79. A revolution had struck school finance that would change the game entirely: As noted earlier, Proposition 13 was passed by the voters, severely limiting local property taxes, and thereby shifting control over the funding of K-12 education from school districts to the state.

Armed with a huge surplus of funds stemming from the strong recovery from the recession of 1973, in 1978-79 the state increased its allocation to local schools by $2.4 billion, an increase of greater than 80 percent. Significantly, revenue limits did not grow–this money was provided to backfill a shift of property taxes from schools to local government. Notably, though, relatively little of the huge expansion of state funding for schools went into categoricals, which only increased from $862 million in 1977-78 to $976 million in 1978-79. Thus, most of the new money went into unrestricted general aid because it replaced local property taxes.

The emphasis continued in the late-1970s to be on the provision of services for children of low-income families. The following programs were added:

- A state child nutrition program was started in 1974-75 at $13 million, which grew to $33 million by 1978-79.
- A major initiative in child care was begun in 1977-78, funded at $73 million to start.
- In 1978-79, Riles' Early Childhood Education and Educationally Disadvantaged Youth programs (along with the much smaller Bilingual-Bicultural program) were reconfigured and folded into two new programs: the School Improvement Program (SIP) and the Economic Impact Aid (EIA) program. From 1973-74 through 1978-79, funding for compensatory education increased from $120 million to nearly $250 million. SIP and EIA survive today, both being funded at about $400 million each in 1998-99.
- State funding for desegregation was initiated in 1978-79. This program, which benefits only a small percentage of all the school districts in the state, has grown to $633 million in 1998-99.
- Urban Impact/Meade Aid began in 1976-77 with $8 million and reached nearly $100 million in the late-1980s when it was rolled into the revenue limit. As its name suggests, most of this money benefited large urban districts such as Los Angeles and San Francisco. The Urban Impact/Meade Aid soon became one of the most notorious categorical programs as it targeted money to specific districts.

1979-80 through 1985-86: A New Era for Categoricals

A major change in the nature of categorical programs in California occurred between 1979-80

and 1985-86. This change would escalate in the second half of the 80s and continue throughout the 1990s. The change was the creation of the "mini-categorical." Mini-categoricals were new state programs of local assistance with very narrow purposes, usually funded at very low levels, as the legislative author was typically more interested in establishing the program than in the funding level. Because of their narrow focus, these mini-categoricals never developed the political support for large-scale expansion. Whereas the earlier categoricals aimed to provide categorical services to all eligible pupils, schools, or districts, the new mini-categoricals, on account of their narrowness, rarely increased their funding beyond cost-of-living-adjustments.

	1982-85	1998-99
Foster Youth Services	$0.7	$4.5
High School Counseling	$6.5	$14.6
Small School District Transportation	$18.6	(in revenue limit)
Intergenerational Education	$0.17	$0.17
Youth Suicide Prevention	$0.3	$0.0
Curriculum on Birth Defects	$0.5	$0.0
Agricultural Education	$3.1	$3.9
Specialized Secondary Schools	$2.1	$4.4
Drug & Alcohol Abuse Prevention	$0.43	$0.0
School Business Personnel Staff Development	$0.25	$0.0
Educational Technology	$1.9	$55.4
Institute of Computer Technology	$0.1	$0.49
Education Improvement Incentive Program	$14.4	$0.0
Classroom Teacher Instruction Improvement	$17.1	$0.0
Peninsula (Partnership) Academies	$0.6	$14.0
Vocational Education Student Organizations	$0.43	$0.66
Teacher Education and Computer Centers	$6.3	$0.0
School/Law Enforcement Partnership	$0.15	$26.4
Pupil Dropout Prevention & Recovery	$2.7	$18.9
Minimum Teacher Salary	$2.9	(in revenue limit)
Administrator Training & Evaluation	$1.5	$6.1
Year-Round Schools Incentives	$4.2	$71.7
Mentor Teacher Program	$10.8	$80.6

Table 3. Funding of Major Categorical Programs (in millions): 1982-85 and 1998-99

The following categorical programs (in millions) were created between 1982-83 and 1985-86. Many were included in SB 813, a legendary package which emerged out of spectacular budget negotiations in the spring and summer of 1983. Prior to SB 813, it was assumed that regular education programs were okay, and that categorical support should be targeted for students with special needs. But SB 813 challenged this assumption, inferring that regular education needed support as well.

One of the most significant developments during the late 70s and early 80s was the emphasis on staff development. Expansion of categorical programs for teacher training began in 1977-78 and 1978-79 with the creation of the Bilingual Teacher Corps, Professional Development Centers, and School Personnel Staff Development & Resource Centers. However, these programs were each funded at less than $2 million annually. The big push came in 1983 with the creation of the Mentor Teacher Program, the Teacher Education and Computer Centers, and the Classroom Teacher Instructional Improvement Program—all at much higher levels of funding. The early 80s also saw the establishment of training programs for administrators and school business personnel.

In 1978-79 and in 1982-83 there were 23 categorical programs. By 1985-86, there were 44. Growth in the number of programs was accompanied by major growth in the percentage of the SGF allocated to schools that was devoted to categoricals and in the total dollar amount (up from $976 million to $2.9 billion.) From the reduced categorical funding base of 18 percent established in 1978-79 when the state bailed out the school districts after the passage of Proposition 13, the percentage climbed back to 27 percent in 1985-86, approaching its all time high of 29.3 percent in 1977-78. (Actually, it would not be until 1990-91 that the percentage allocated to categoricals would exceed the 1977-78 benchmark.) Growth in the major categoricals was substan-

	1978-79	1985-86
Pupil Transportation	$60	$286
Child Care	$80	$265
Instructional Materials	$43	$95
School Improvement Program	$123	$214
Economic Impact Aid	$123	$195
Urban Impact Aid	$44	$86
Special Education	$237	$879
Desegregation	$60	$289

Table 4. Funding of Major Categorical Programs (in millions): 1978-79 and 1985-86

tial during the first half of the 80s as shown below in Table 4.

1986-87 through 1990-91: Prop 98 Creates an Environment for More Categoricals

As noted earlier in this chapter, the passage in 1988 of Proposition 98, which attempted to define a minimum level of funding for K-12 education, had significant consequences for resource allocation to the schools. Prior to Proposition 98, decisions about funding for the schools were made, to a much greater extent than after, in the context of the overall budget for all public services. For example, during the Deukmejian administration, battles over the K-12 COLA were waged in the context of how much should go for welfare, health, and higher education. Proposition 98 resulted in the virtually total isolation of school funding decisions from the rest of the state budget. K-12 and the community colleges were given a "number," based on the complex Proposition 98 formula, and then were left on their own to split up the money (there were contentious disputes within and between the K-12 and the community college segments, however). After Proposition 98, the education budget was in some years a "done deal" weeks before the final budget negotiations even occurred.

The isolation of the K-12 education budget heightened conflict between contending education interests. Their focus now was on dividing a known pie, not on fighting to increase the total size of the pie. The first great negotiation of the Proposition 98 era was held in the spring of 1988. Legislators and their own staffs from both houses, representatives of the governor, and staff members from the Department of Finance met for several weeks in the Governor's Conference Room to negotiate the budget. Assembly Republicans threw the deal-making for a loop when they demonstrated that large urban districts with mighty political muscle, such as San Jose, Los Angeles, and San Francisco, were receiving from $600 to $1300 dollars more per-pupil for compensatory education than many other districts which in fact had higher percentages of low-income, minority, and non-English speaking pupils. The upshot was the creation of the Supplemental Grants program, which targeted money for districts with relatively low amounts of funding per-pupil based on the combined total of their categorical funds and revenue limit income.

A final significant consequence of Proposition 98 was the creation of large pots of "one-time" money each year. One-time money resulted when the Department of Finance underestimated the amount of the Proposition 98 guarantee (which it invariably did) so that at the end of the fiscal year the Proposition 98 guarantee was underfunded. The amount underfunded was considered "one-time" money by prudent budgeters because it would be allocated and spent in the succeeding fiscal year. It was not possible for districts to spend that money on ongoing obligations (such as salaries) because that, in effect, would be double-counting the money as part of the ongoing Proposition 98 base. While most of the one-time money was allocated in large block grants on a per-pupil basis or on a per school-site basis (and there usually were "categorical" strings on how the money could be spent), it became a wonderful source for "education pork." Governor Wilson, in the late 90s, was the first to permit wholesale allocations of funds to individual districts for isolated projects.

Also under Proposition 98 the "hidden" categorical programs were given increased scrutiny because they took money out of the pie. The hidden categoricals are state mandates passed by the legislature directing schools to perform certain actions such as medical examinations and collective bargaining. These costs are funded out of Proposition 98 dollars. By the 90s, the cost of state mandates had reached the neighborhood of $100 million per year.

In general, it is difficult to determine whether Proposition 98, with its constraints, has improved or impaired the quality of education budget-making. It has not reduced the use of categoricals, that is for certain. Perhaps the more focused debate over the use of education funds has been a benefit. But Proposition 98 also sullied the decision-making process to a certain extent. Many times a legislator (whose legislative specialty was not education) sitting on an education committee would ask if a proposed new program was to be funded out of Proposition 98 dollars. If the answer was yes, then the legislator did not care very much whether the program was passed or not because it was "Prop 98 money" that would be going to education one way or another.

In addition to Supplemental Grants, the initial years of Proposition 98 saw the continued emphasis on teacher training through new categoricals. Between 1988 and 1990, three major new training programs and one small one were established:

- Professional Development Program (Initial funding of $20 million in 1988-89)
- New Teacher Project ($3 million in 1988-89, growing to more than $70 million today)
- Subject Matter Projects ($5.3 million in 1990-91)
- Geography Education ($100,000 in 1989-90)

The negotiations that produced Supplemental Grants also established two significant new programs:

- High School Class Size Reduction ($31 million in 1990-91)
- School Restructuring Grants ($6.5 million in 1990-91)

The huge windfall in the first years after Proposition 98's passage also fueled the continued growth of the traditional categoricals:

Increases in these programs—particularly in Special Education—boosted the percentage of SGF allocations to schools that was in categoricals to 31.6 percent in 1990-91, sur-

	1985-86	1990-91
Special Education	$879	$1,681
Year-round School Incentives	$4.5	$35.4
School Improvement Program	$214	$315
Economic Impact Aid	$195	$272
Desegregation	$289	$503
Child Nutrition	$31	$52

Table 5. Funding of Major Categorical Programs (in millions): 1985-86 and 1990-91

	1990-91	1994-95
Special Education	$1,682	$1,617
GATE	$29	$32
Pupil Transportation	$328	$332
Miller-Unruh	$22	$22
Desegregation	$503	$502
School Improvement Program	$315	$317
Child Care	$325	$407
Instructional Materials	$129	$164
Education Technology	$14	$23
Economic Impact Aid	$272	$324

Table 6. Funding of Major Categorical Programs (in millions): 1990-91 and 1994-95

passing for the first time the previous record of 29.3 percent set more than a decade earlier in 1977-78.

1991-1992 through 1994-95: Recession Strikes

Pete Wilson came into office in 1991with his education agenda. Though he was able to establish two new categoricals in 1991-92 that embodied his ideas, the deep recession of the early 90s thwarted his ambitions and also slammed the door shut on increases for most of the traditional categoricals through 1994-95. Rapid economic growth after that year led to an explosion of new programs and ultimately to the creation of the Class Size Reduction categorical program for grades K-3.

Of the programs that did not have flat growth between 1990-91 and 1994-95, Instructional Materials, Education Technology, and Economic Impact Aid picked up in 1994-95 as the economy started to recover. Child care was a Governor Wilson priority throughout his years in office and he engineered increases in this area during the early 90s. Wilson also pushed through two of his prevention programs in 1991 before the brunt of the recession was felt: Healthy Start (initial funding of $19 million in 1991-92) and Prenatal Substance Abuse ($4 million in 1991-92).

1995-96 through 1998-99: The Wilson Legacy

California's economy surged upward in the second half of the 90s. The traditional categoricals resumed their growth at a rapid clip as shown in Table 7.

Perhaps the most important event driving the budget process in the Spring of 1995 was the revelation the previous Fall that the reading skills of California students were near the bottom among all the states in the nation. The Wilson administration responded with the California Reading Initiative, a combination of staff development and instructional materials to reinstate systematic phonics instruction in K-3. The dismal NAEP test scores, plus ten years of research on how children learn to read and

bipartisan support, pushed the $167 million California Reading Initiative through the legislature with virtually no opposition in 1995. This was followed up in the budget of 1997-98 with an additional $56 million for reading staff development.

Also on the minds of people in 1994 and 1995 was school violence. Never to lose an opportunity to solve a problem by creating a program, the legislature enacted, and Governor Wilson signed into law, the following programs:

- Metal Detectors (initial funding of $1 million in 1994-95)
- School Crime Report ($800,000 in 1994-95)
- Gang Risk Intervention ($3 million in 1995-96)
- Targeted Truancy and Public Safety ($10.8 million in 1995-96)
- School Violence Reduction ($4.2 million in 1995-96)
- Conflict Resolution ($2.2 million in 1995-96)

In conjunction with these programs, Governor Wilson pushed for zero-tolerance for certain offenses on campus, such as carrying a gun. But the Democrats refused to throw students deemed guilty of such offenses "out on the street," leading to the creation of another new categorical program—Community Day Schools for expelled pupils—that grew to $20 million by 1998-99. Additionally, Wilson proposed Single Gender Academies as a solution to the problems of restless young boys. It was passed and funded at $5 million for starters.

The rapid growth of the Internet was the spark that ignited the Wilson administration's major initiative in education technology—the Digital High School which was proposed in 1997 as a five-year, half-billion dollar program. Fuelled by a combination of one-time money and ongoing funds, the Digital High School incorporated a unique allocation strategy: high schools were grouped by size and within each

	1994-95	1998-99
Special Education	$1,617	$2,112
GATE	$32	$56
Pupil Transportation	$332	$521
Miller-Unruh	$22	$32
Desegregation	$502	$633
School Improvement Program	$317	$395
Child Care	$407	$794
Instructional Materials	$164	$172
Education Technology	$23	$55
Economic Impact Aid	$324	$401
Pupil Assessment	$6	$67

Table 7. Funding of Major Categorical Programs(in millions): 1994-95 and 1998-99

group grant recipients were selected at random. Over the five-year period, all high schools would eventually receive a large grant for hardware, software, and staff training.

A major program that began in 1997-98 was the Staff Development Days Buy-Out, which required districts to provide 180 days of instruction while prohibiting the practice of using up to eight of these days for staff training with the pupils not in school. This program cost $50 million in 1997-98 and $195 million in 1998-99.

The great structural reform of the 90s was, of course, Class-Size Reduction in grades K-3. Funded at $771 million in 1996-97 for three grade levels, it grew to $1.58 billion annually by 1998-99 as participation increased. For many years legislation had been introduced to reduce class size, but only a half-hearted effort in grades nine and ten had ever passed. However, in the mid-1990s, reports from other states, particularly Tennessee, indicated that class size reduction had improved student achievement. The availability of large quantities of new money, Governor Wilson's presidential ambitions, and his animosity towards the California Teachers Association, combined to make the time right to see whether reading and math deficiencies in the early grades could be remedied through class size reduction rather than through changes in instructional methods. Further, Governor Wilson was looking for

Selected One-time Allocations in 1998-99 (in millions)	
Science Laboratory Equipment	$71.5
Math Instructional Materials Aligned with New Content Standards	$250.0
Mathematics Teacher Training	$28.5
School Site Grants	$180.0
Selected New Programs Established in 1998-99 (in millions)	
After-School Learning & Safe Neighborhoods Partnership Program	$50.0
College Preparation Grants	$5.0
College Admissions Test Preparation	$10.0
Advanced Placement Test Fees	$1.5
International Baccalaureate Program	$1.1
Community-Based English Tutoring (Prop 227)	$50.0
Grade Nine Class Size Reduction	$44.5
School Library Materials	$158.5
Remedial Summer School	$105.0
High-Risk First-Time Offenders	$20.0

Table 8. Selected One-time Allocations in 1998-99 and Selected New Programs Established in 1998-99

assurances that these new monies would not find their way solely into augmented salaries for teachers.

One-time monies were abundant in the late 90s, giving rise to large "block grants" with strings attached. Per ADA block grant funds were often restricted to purchases of books, computer equipment, and deferred maintenance. Furthermore, grants to school sites circumvented the traditional authority of local school boards to allocate funds among schools within districts.

One of the most troublesome practices to emerge during the Wilson administration was the pork-barreling of one-time funds. While the Chino USD Drug Awareness Program, the Soledad USD Library, the Claremont USD Special Education Facility, and many others may be worthwhile projects, line-itemizing them in a wholesale manner in the State Budget in 1995-96 was a new practice that raised legislators' expectations for future years. They were not disappointed in 1998-99 when nineteen additional individual district projects were funded.

In the last budget (1998-99) produced under the aegis of Governor Wilson, the state allocated more than $3 billion of new funds to K-12 education. These funds not only fueled the growth of the traditional categoricals, but were also used for substantial one-time categorical grants and the creation of new programs.

Many of the new programs have a compensatory education theme—remedial summer

Students with Disabilities	
Special Education	$2,111.9
Early Intervention for Success	$1.9
Specific Sub-populations	
Mentally Gifted/GATE	$55.6
Indian Education Centers	$3.4
Indian Education Programs	$0.47
Foster Youth Services	$4.5
High School Counseling	$14.6
Single Gender Academies	$3.8
Community Day Schools	$20.4
Remedial Instruction Summer School	$105.0
California/Japan Scholars Scholarships	$0.05
Transportation	
Transportation of Regular Pupils	$521.1

Table 10. California's Categorical Programs (in millions) 1998-99
Source: PACE Analysis

Specific Subjects	
Special Elementary School Reading Instructional Program	$31.8
Conservation Education (Environmental Ed.)	$0.5
Intergenerational Education	$0.17
Agricultural Education	$3.9
Specialized Secondary Schools	$4.4
Local Arts Ed Partnership Grants	$3.0
International Baccalaureate	$1.1
California Civil Liberties Public Education	$1.0
Latino Museum	$0.75
Community-Based English Tutoring (Prop 227)	$50.0
Science Lab Equipment (one-time)	$71.5
Administration	
Loans (WCC: 90-91; Coachella: 91-92; Compton 93-94, 97-98, 98-99)	$0.3
Deferred Maintenance	$135.0
Year-Round Schools Incentive Program	$71.7
Administrator Training and Evaluation	$6.1
Reader Services for Blind Teachers	$0.29
Teacher Dismissal	$0.03
School -based Management	$0.98
Standardized Account Code Structure	$5.5
County Office Oversight	$3.7
Pupil Residency Verification	$0.16
FCMAT—CSIS	$3.0
FCMAT—Comptton Recovery Plan	$0.5
Child Development	
Child Care	$793.6
Instructional Materials	
Free Textbooks/Instructional Materials	$172.1
Instr. Mat. for Standards Aligned Core Curriculum (math)	$250.0
Educational Technology	
Educational Technology	$55.4
Institute of Computer Technology	$0.49
Digital High School	$136.0
Single-School Districts—Laptops	$1.2
Technology Literacy Challenge Grants	$45.2

Table 10 continued. California's Categorical Programs (in millions) 1998-99

Compensatory Education—Low-Income Populations/Bilingual	
School Improvement Program	$394.5
Economic Impact Aid	$400.9
Opportunity Classes and Programs	$8.1
Healthy Start	$49.0
Advancement Via Individual Determination	$1.0
College Preparation Grants	$5.0
Advanced Placement Exams	$1.5
College Admission Tests Program	$10.0
Desegregation/Compensatory Programs	
Court and Federal Mandates—Desegregation	$632.7
Reform	
Demonstration Programs in Reading and Math	$5.9
Class Size Reduction (high school)	$35.4
Class Size Reduction (ninth grade)	$44.5
Class Size Reduction (K-3)	$1580.9
Staff Development Day Buyout	$195.0
Vocational Education	
Regional Occupational Centers and Programs (ROC/Ps)	$309.4
Peninsula (Partnership) Academies	$14.0
Vocational Education Student Organizations	$0.66
Food	
Child Nutrition	$74.5
Staff Development	
Bilingual Teacher Corps—Bilingual Teacher Training	$1.5
Mentor Teacher Program	$80.6
Teaching Improvement Programs (Intersegmental)	$1.7
Professional Development Program	$19.1
New Teacher Project (Beginning Teacher Support)	$67.7
Geography Education	$0.11
Math Staff Development	$28.5
Individual District/Area Projects	
Regional Science Resource Center	$1.5

Table 10 continued. California's Categorical Programs (in millions) 1998-99

Chino USD Drug Awareness	$0.6
Angel Gate Academy	$0.6
Apportionment to Oxnard USD	$4.2
LAUS—At-Risk Youth	$0.6
LAUSD—CA Arts Initiative	$0.3
Huntington Beach High School	$0.1
Napa Valley ROC/P Computer Equipment	$0.35
Pasadena USD—Books for Tutoring	$0.02
Santa Paula USD—Pool Renovation	$0.08
Montebello USD—School Security Devices	$0.05
LA County Office of Ed.—Middle School Civics Curr.	$0.18
Lucia Mar USD—Performing Arts Center	$0.5
Loa Alamitos USD—High School for the Arts	$0.7
San Bernardino COE—Afterschool At-Risk Youth	$0.03
Santa Clara COE—Develop Ed Networks	$0.05
Imperial COE—Tech Infrastructure Project	$0.35
Anaheim City USD—Anaheim Archives	$0.38
Merced COE—Pilot Job Opportunities Program	$0.15
Bellflower USD—Bellflower Against Gangs	$0.05
Glendale USD—Facilities Technology	$1.0
Glendale & Burbank USDs—MTL School to Work	$0.1
Grossmont HSD—Athletic Facility	$0.2
Targeted General Aid	
School Site Grants (one-time)	$180.0
State Mandates	
State Mandates	$97.2
Long Beach Mandate Payment	$4.1
At-Risk Youth	
Pupil Dropout Prevention and Recovery	$18.9
Gang Risk Intervention	$3.0
High-Risk First-Time Offenders	$20.0
School Safety	
School Law Enforcement Partnership	$26.4
Conflict Resolution	$0.3
School Community Policing	$10.0
Library Protection	$0.7

Table 10 continued. California's Categorical Programs (in millions) 1998-99

After-School Learning & Safe Neighborhoods Program	$50.0
Statewide Pupil Assessment	
Pupil Assessment	$67.0
Golden State Merit Diploma	$0.6
School Libraries	
School Library Materials	$158.5
Total 1998-99 Categorical Programs	**$9,303.0**

Table 10 continued. California's Categorical Programs (in millions) 1998-99

school, after-school learning, preparation for college admissions tests, high-risk first-time offenders, advanced placement test fees, and college preparation grants. The only new programs directly linked to academic standards recently promulgated by the state board of education are the math instructional materials and teacher training programs. The upshot of the frenetic activity around categoricals in the late 90s was that total funding for these programs increased from $4.7 billion in 1994-95 to $9.3 billion in 1998-99, reaching a record high of 39 percent of SGF allocated to schools.

A complete listing of California's categorical programs is shown above for the 1998-99 year.

1999-2000 Governor Gray Davis and The New Millennium

Immediately upon his election in 1998, Governor Gray Davis called a special session of the Legislature to address education issues. What came out of that session was a set of

Teacher Peer Review (plus $83 million: Mentor Teacher Program)	$42
Performance Incentives for Teachers at Low-Performing Schools	$50
Immediate Intervention / Under Performing Schools Program	$96
Governor's School Performance Awards	$96
Elementary School Intensive Reading	$75
Per-Pupil Block Grants for Instructional Materials	$134

Table 11. Major New Categorical Programs in 1999-2000 (in millions)

strict accountability policies, coupled with incentive structures for school improvement. New accountability measures have been linked to the STAR achievement tests, which are gradually being transformed from a nationwide standardized exam to one that reflects the academic content standards that have been adopted by the California State Board of Education.

The major new categorical programs contained in the 1999-2000 budget are shown in Table 11.

According to the Department of Finance, with the $134 million for textbooks in addition to other instructional materials funding in the 1999-2000 budget, all schools will have sufficient funds to purchase for each pupil three textbooks that are aligned with the new state standards.

Summary: Not counting the individual district projects, a complete listing shows more than 150 categorical programs in operation in the public schools during the past forty years.[17] We should note that each year there are scores of categorical program proposals that do not become law, and over the past twenty years hundreds, if not thousands, of new programs have been stopped in the appropriations committees of both houses.

A retrospective on the patterns of categorical funding indicate a progression from one set of emphasis to the next over the years. Initially, beginning in the 1960s, categorical funding was targeted for the educationally disadvantaged through compensatory programming. By the late-1970s and early-1980s, programs were increasingly being developed to expand into the regular education program to provide additional capacity to schools. Ten years later, the emphasis changed to be more targeted to professional development, linked in part to the emerging California content frameworks. The proliferation of supplemental grants came next. And finally, the late-1990s introduced class size reduction as the largest program outside of special education. In recent years, additional categorical emphasis has been placed in violence prevention and technology, but the funding is less substantial than the other areas of emphasis that have been noted.

Over thirty years, the shift of control over the financing of schools from local districts to the state legislature has resulted in a new sense of responsibility in Sacramento for the performance of the public schools; this certainly seems to represent the spirit of today as no plausible category of programs is untouched by the categorical funding stream. More than simply the number of programs, the sum total of categorical funding is not systematically linked to the state's education reform agenda in any coherent fashion.

Oddly enough, in a policy environment where accountability for outcomes is of greatest concern, the financing system is left out of the rationale. By establishing categorical programs, the state sets up default mandates for the ways in which spending should occur and schools should be organized. But if these very mechanisms that the state has mandated fail, can blame really be placed in the schools? The irony is that categorical funding, and all that it supports, is ultimately exempt from the rigor of the school and student accountability system that the state has implemented in recent years.

Next Steps: Exercising Caution in School Finance Reform

This chapter has provided a line of argumentation that there is not a clear connection between the state's educational objectives and the funding system that has evolved. As has been suggested by many analysts over the past several years, the time to restructure education finance has arrived. The solutions involve considerations of equity, adequacy, and governance, each of which bring substantial complexity to the reform conversation.

Equity Concerns

Categorical programming, once intended to add compensatory services for the few to increase opportunity, now adds substantial services of many kinds for most students. The implications of this change need to be well understood not only from the perspective of fiscal equity, but also inequities that avail themselves by highly varied educational opportunities across schools in California.

A recent report of the U.S. General Accounting Office explains that when state and local revenues are summed and adjusted for the cost of education and student need, California is reported to have substantial intrastate fiscal disparities.[18] At the same time, analysts are increasingly able to demonstrate substantial inequities across the state, both within and across school districts: teacher quality, course offerings, physical conditions, among others. California, once seen as leading the nation in the extent to which equity drove the education system, now is seen as just about average.[19] And while the revenue limit carries a burden of equalizing the system, it has increasingly less leverage with the substantial growth in categorical funding. Raising this point is fundamental because conversations about the rationality of the school finance system must embrace, at the same time, overarching concerns about equity, and at the same time, educational objectives of the system.

For example, we are at the same time bound by explicit considerations of equity (through the *Serrano* decisions), and pressures to provide additional support through categorical funding to districts, where needs are demonstrated and opportunities avail themselves. While on its face, a rational set of objectives, and completely consistent with the intent of the court, we suggest that the *Serrano* equity principle is harder to apply in policy discussions as categorical support grows. In part the difficulty is measuring the extent to which revenue limits and categorical funds reach their intended goals together, and making a set of leaps in judgement that the ultimate allocations reflect equitable distributions in an educational sense.

It should not be surprising that this difficulty is upon us. Of course the equity rationale of the original *Serrano* decisions is about fiscal equity–the distribution of revenues being independent of property wealth. We would argue that the distribution of categorical aid also ought to be about equity, but equity that is driven by educational need, with specific goals of effectiveness as a leading principle. Of course the central point is that the two conceptions of equity are difficult to blend, and the current financing system reflects this difficulty in spades.

We argue that the policy constraints in California since the 1970s set an odd precedent–here and across the country. It became "policy lore" that if a state increased equaliza-

tion of funding following court-ordered reform, as did California, then the likely event to come would be a substantial reduction in funding for K-12 education. Several points are inaccurate. First, even while California's relative funding level declined compared to the national average post-*Serrano*, and the decline was substantial, real funding continued to improve year-over-year for much of the past thirty years. Second, while the relative decline that California experienced is indisputable, the events in California are not those that other states have experienced when substantial school finance litigation catalyzed the school finance system to improve equity. The main point is that history has demonstrated that greater equalization of spending in a state is not incompatible with higher levels of state spending for K-12 education.[20] Of course, California's idiosyncratic school finance history is different from other states, as is the extent to which economic declines in past years impeded state general fund growth. Perhaps more than anything, the policy constraints that California faces, taken together, are unlike other states to be sure.

The emphasis on the equity of funding as seen in state policy discussions through only the revenue limit structure, over many years, has contributed to a displacement of discussions about larger questions of equity in California. Without ongoing careful analysis of the relative needs of students, schools, and districts, the increase in categorical funding structures, and the increase in categorical support as a percent of education funds, run the risk of violating principles of educational equity.

Educational Adequacy

The state–increasingly standards driven, with assessments in place–is in an unusual position to realign funding systems with educational priorities that are outcome based. The central point is to align long-term educational priorities with funding designs. If there is an approach consistent with this alignment that has caught the attention of state policymakers nationwide in recent years, it is that of "educational adequacy." We take some time here to review the arguments in favor and against this approach, and consider how "adequacy" discussions might play out in California in the coming years.[21] Standards-based reform strategies put adequacy, with respect to school finance, in the center of the discussion. Resolving this discussion will require a complete restructuring of the existing school finance polices, structures and programs.

Concepts of "educational adequacy" have existed for decades and have always played a role in not only understanding school finance policy, but also indirectly in litigating school finance policy. In part because early school finance cases that came before State Supreme Courts argued that violations of equal protection were at issue, equity principles took center stage in the deliberation and decisions. Increasingly over the past 10 years, and beginning in Kentucky in 1989, school finance litigation has become tied to conceptions of an "adequate" education, consistent with state constitutional guarantees. Adequacy clauses, in some form, guarantee students an adequate level of educational opportunity that is consistent with a

Dates	Description	States Involved
1970 - 1980	Court decisions gave attention to the adequacy and wealth neutrality of school finance systems.	New Jersey, Washington, West Virginia
1989	Entire state education program found to be unconstitutional	Kentucky
1989-1998	Courts ruled that their state constitutions' education clauses guarantee students an adequate level of educational opportunities that should allow them to achieve certain desired educational outcomes.	Alabama, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Ohio, Tennessee, Wyoming
1994	Adequacy case won by claimants concerning capital costs of school construction.	Arizona
1998-present	Adequacy-based lawsuits pending	Louisiana, Minnesota, Pennsylvania, South Carolina

Table 13. Adequacy Related Litigation by State[22]

specified set of desirable educational outcomes. Courts have written considerably in their decisions about what these desirable outcomes ought to be, which in and of itself has made the translation from judicial to legislative intent quite difficult. The table below shows the list of states that have been involved in educational adequacy litigation over the past decade.

The policy design challenge is to identify, and articulate, those components of educational activities that constitute an "adequate" education. In general, the specification by State Supreme Courts on this point has been about educational outputs, leaving it to the legislature to determine what inputs yield an adequate education. There are a number of court cases that have been argued on adequacy grounds, and an increasing number of legislative remedies that have used the courts' language as a catalyst for the policy change.

Whether driven by a response to litigation or policy initiative, the goal is to understand the relationship between how much we spend and a specific set of outcomes that constitute an "adequate" education. Understanding this relationship has been a focus of researchers' work for more than thirty years and continues to be difficult to articulate with specificity; as we all know, the relationship between what education dollars buy and what students learn is complicated by many factors including schools, families, communities, poverty, and their interaction. The central point is that discussions of "adequacy" demand an explicit conversation about setting a level–the level at which educational inputs "yield" a set of outcomes that are

acceptable by some standard. But the confounding factors of determining students' particular needs and their relationship to these specified outcomes makes the explicit conversation extremely difficult.

Challenges aside, most states, are now grappling more explicitly than ever with the construct of adequacy–even without any catalyst in the form of school finance litigation. In California, as well as the majority of states which have embraced standards-based reform, the articulation of what students need to know is now being faced head on by the question of 'how much does that cost.' As each state refines its capability to measure progress against state standards, the stakes of answering the question increase.

Examples of Educational Adequacy from Four States

Examples from four states illustrate the variation with which states have used a model of educational adequacy in the formation of school finance policy. It will be a matter of time before experts can assess whether these new conceptions have served public policy well, and whether the analytic framework has sufficient integrity to withstand time and political debate. The states that have adopted some conception of educational adequacy in their policy discussions are working to understand the practical implications of the approach. In each state, clearly, the fundamental questions of what constitutes "adequate" remain extremely difficult. This is not to say that agreement has not been reached, nor that it can be reached, by educators and policymakers who have invested in this approach.

Kentucky

In 1989 the Kentucky Supreme Court declared the state's entire system of public schools to be unconstitutional on the grounds that the system failed to afford all students equal access to adequate educational opportunities. Following the ruling, the Kentucky Legislature immediately created what has been recognized as the most comprehensive experiment in educational reform—the Kentucky Education Reform Act of 1990, known as KERA. The vast changes embodied within KERA completely overhauled the state's education system—linking educational programs with school finance formulas, shifting to an outcome-based education structure based on state education standards and coupled to a performance-based accountability and assessment system, increasing local level discretion in school governance and financial decisions, requiring pre-school for all at-risk youth, and establishing a new foundation program which increased the minimum basic state aid for schools.

In the years following the court's ruling, schools have scrambled to meet the demands of implementing KERA. Schools welcomed an increase in general purpose funding, but were challenged with implementing school site councils, adopting new curriculum standards and assessments, and adjusting to an accountability system with rewards and sanctions. However, the experiences of Kentucky schools serve as valuable examples of the challenges met during the adoption and coordination of a systemic school reform founded on conceptions of educational adequacy.

Wyoming

In 1995 the Wyoming Supreme Court ordered the legislature to design an educational system that would provide all students with a "proper education."[23] The legislature responded to the ruling by defining a basket of education goods and services, consisting of a list of core courses and expected educational outcomes. After deliberation and agreement upon which components were to be included in the basket, the legislature, with the help of education consultants and a panel of Wyoming education experts, estimated the educational expenses that would constitute a "proper education", and created a cost-based block grant funding model. The new funding formula was designed around two factors: 1) A measure of students average daily membership; and 2) A model of average funding levels for three prototypical school models—elementary, middle, and high schools.

The prototypical school models were designed around 25 principal cost components which account for specific instructional and operating costs deemed necessary to insure a "proper education." The components were divided into the following five categories: 1) Personnel; 2) Supplies, materials, and equipment; 3) Special services; 4) Special student characteristics; and 5) Special school, district, and regional conditions.[24] Specific to each school model, the components were "costed-out" and a market cost was assigned to each. Revenue is distributed to districts according to the type of school models and the organizational characteristics of schools within each district.

Ohio

Ohio began the implementation of an educational adequacy model in 1995 in response to school finance litigation. The model has been developed by the Ohio Department of Education with substantial consultation from education finance consultants. The conception of adequacy in Ohio begins with an affirmation that some number of schools in the state are performing "adequately," within the resources they have available to them. Notably, the Ohio legislature approved a new funding plan that was designed around the principle of "adequacy," but voters refused to approve the tax increase that was needed.

The model, in its most recent form, uses the average per-pupil spending level in Ohio districts where the spending level was correlated with acceptable educational outcomes. The outcome measure is a set of criterion-referenced results from state assessments–the percentage of students passing minimum competency levels in particular areas of the curriculum. The model identified 102 out of 607 Ohio school districts whose students met 17 of 18 criteria. The districts were carefully chosen so as not to be outliers in their proportion of high and low property wealth, or spending level. Attendance rates of 93 percent or higher, and dropout rates of 3 percent or lower were also required to keep school districts in the sample. Using school districts that met all of the criteria, analysts constructed a weighted mean per-pupil revenue from district expenditure patterns. This resulted in a per-pupil amount and became the definition of "adequacy" before adjustments for costs that were beyond the control of the district.[25]

Oregon

The state of Oregon has developed an educational adequacy model that ties financing to

students making educational achievements that are competency based. The Oregon Quality Education Model is based on the premise that the school should be the unit of analysis, although state funding is still to be distributed on a per-pupil basis from the state. The history of the design can be tied to interest by Oregon's top policymakers to understand the best return on investment, and the implications for rationing public funding for education, as in health care. The implementation required the development of a sophisticated cost-based data collection and accounting system, implemented systematically across the state.[26] The model is described as a work in progress, but will likely be used during budgeting discussions in the upcoming legislative session. Further, the model is not intended to be an allocation or distributional model, but rather a tool to allow policymakers to understand and deliberate the total education budget.

The model assigns detailed cost estimates to the primary elements that make up the instructional program of a school: teaching staff, administrative support, and supplies. The instructional program is determined to be of a sufficient quality when it contains all of the components that have been deemed necessary through extensive consultation within the state: specific academic content, performance standards, specific developmental goals, class size constraints, professional development opportunities, the duration of instruction, and operational support. The costs of "prototype" schools have been developed within these constraints, and then adjusted for socioeconomic factors, location, age of building, and other factors that establish the schools' context. To the extent possible, each of these adjustments was made using the best available data from numerous sources throughout the state.

The promises of the approach aside, the National Research Council's Committee on Education Finance concluded in late-1999 the following regarding educational adequacy. These caveats seem particularly appropriate to the context of California:

> Deliberations in courthouses and statehouses suggest that a desire to implement adequacy may be outpacing current understanding of how to define and achieve it. In comparison to wealth neutrality and equal spending, equity defined as adequacy requires difficult value choices, as well as policy decisions in areas in which the available technical knowledge is weak. Implementing adequacy requires establishing anchors for identifying what is adequate; determining the costs of an adequate instructional delivery system; making adjustments for student, school, and geographic characteristics; adjusting for inflation from year to year; and developing an assessment system for measuring whether adequacy has been achieved.[27]

The cautions that are raised here are particularly applicable in California where measurement and technical questions, within the context of state coherence, have bedeviled policymakers; the implementation of a stable assessment system has taken decades, and time will tell whether the STAR system is in place for any length of time to make systematic statements about changes in student performance possible. With these caveats noted, California must begin the difficult data collection and deliberations that are needed to begin understanding the costs of the education system it has

designed– developing new analytic methods to assess the relationships between funding and educational outcomes.

As noted, discussions of "adequacy" demand an explicit conversation about setting a level–the level at which educational inputs "yield" a set of outcomes that are acceptable by some standard. We want to express caution that in a state that has seen such limited funding growth as California, "adequacy" discussions are not likely to occur without substantial pressure for marginal funding changes, and those marginal changes are not necessarily going to be "adequate" funding changes. These pressures should be resisted. Said another way, given the inherent complications with using educational "adequacy" as an analytic construct in the first place, the temptation of policymakers may be to simplify the process of determining "adequacy" by simply adding revenues to the K-12 system. While this solution might add revenues, albeit on the margin, it would not have been consistent with the process that determining educational adequacy requires–careful thinking about the differential funding obligations for students with special needs, for students in disadvantaged communities, for students with exceptional skills, and for students who require a multitude of specialized services from schools. These are the difficult conversations that policymakers in California must have. California can learn from–and contribute to–thinking on educational adequacy, even though the field is developing and the barriers to the approach, being applied in a pure form, are still substantial.

Governance

Absent a rationale for the separation of decision-making responsibilities around school spending, the school finance system itself cannot be rational. The education funding system needs to be explicitly connected to the governance structures that are accountable for providing services to districts, schools, and students. These include the state, but also include county, district, and school-site structures.

As has been described earlier, the converging events of the 1970s and 1980s resulted in a school finance system that is indisputably centrally controlled. As has been noted by the Legislative Analyst's Office on several occasions in recent years, the control of education funding at the state level has also been associated with the control of education more generally, at the state level. In recent years, the development of curriculum standards, the implementation of the STAR system, and the wide variety of accountability mechanisms would suggest that the state's priorities are more tightly aligned than they have been historically. Of course California is not alone in this design strategy, and it is increasingly hard to find a state that would not describe itself as driven by state-standards.

The policy problem that remains is to maintain central control over the collection and distribution of funds, but allow for a rationale that systematically addresses equity concerns and the educational outcomes that have been identified at the state– and local–level. This does not necessarily mean a greater or lesser emphasis on categorical funding, but rather a coherence to the funding design that includes revenues

attached rationally to legitimately determined local needs. This point is given emphasis not to retrace the past thirty years, but to think critically about the next thirty years. In the years ahead, a coherent education finance policy design will have to address both financing and equalization targets, and do so within a governance structure that allows for the connection to be consistently maintained and adapted.

Grubb and Huerta make a strong case that the education finance system has become ever-distant from discussions about effectiveness in teaching and learning, and suggests that decisions much closer to the school and classroom about the best use of revenues is well overdue.[28] This is but one of many rigorous arguments that have been made, in some way, about site-level decision-making, including but not limited to funding control. To be sure, an argument has been made over more than twenty years about the reasons for these site decisions, although volumes of writing on site-based management have been largely inconclusive on the connections between site-level decisions and student outcomes.[29] What we can say is that those who have studied school sites carefully have argued that funding control is a necessary and essential step for devolution of control–an enabling condition that allows for educational changes to occur that are consistent with improved educational effectiveness.

Conclusion

California, as a state, has developed increasingly clear goals for K-12 education as exemplified by state standards. Absent from this progress has been the discussion of how financial resources should support these goals. The connection that must be made is to articulate the programs and strategies that can be used to meet the state standards, and to identify their costs.

The school finance agenda for the beginning of a new century is to work through the many difficult issues that have been raised in this chapter: equitable distribution of fiscal and non-fiscal resources; measurement of the costs of providing an adequate education to students of highly varied needs; consideration of who is best positioned to make decisions about programs and strategies that are consistent with reaching state educational standards; and design of policy coherence between the finance and accountability systems. To make progress on educational outcomes in California, policymakers need to provide leadership by opening discussions on these main points.

We have indicated that the history of categorical funding is as much about displaced goals on the part of the state as it is about tensions in who ought to decide how funding is allocated at the school site. Complicating the history are policy constraints involving equity, tax burden, and the mechanisms that have been set up over time to protect education within a centralized funding structure. Nowhere in this analysis have we argued that categorical aid structures are necessarily bad policy; to the contrary, it is quite possible to imagine categorical funding systems that make sense in a clearly articulated rationale about which students need particular services, and how those services are linked and structured together into coherent educational visions–visions that are consistent with state objectives, and with the best expertise of educators.

Notes

1. R.L Manwaring and S.M. Sheffrin 1997, Litigation, School Finance Reform, and Aggregate Educational Spending, International Tax and Public Finance 4(2):107-127; T.A. Downes and M.P. Shah, The Effect of School Finance Reform On the Level and Growth of Per-Pupil Expenditures (Unpublished paper, Department of Economics, Tufts University 1995).

2. Helen F. Ladd and Janet S. Hansen, eds. Making Money Matter: Financing America's Schools, National Research Council, (Washington, DC: National Academy Press, 1999).

3. See J. Coons, Clune and Sugarman, Private Wealth and Public Education (Cambridge, MA: Harvard University Press, 1970).

4. At the extreme, a differential within the accepted equity band is $670 per pupil. This difference, multiplied by an average class size of 30 pupils, results in a $20,100 difference in funding per classroom.

5. E. Hill, "Equalizing School District Funding: Option for a Sliding Scale COLA," Legislative Analysts Office Report (Sacramento CA: Legislative Analysts Office, 27 April 1999).

6. Districts are allowed to raise additional taxes for school bonds. This requires a two-thirds majority of the voters. Parcel taxation, for school programming is allowed under the same rules.

7. See Paul Goldfinger, "A History of Revenue Limits: Or, Why is Your Base Revenue Limit Bigger than Mine," Testimony to Assembly Education Committee on School Finance (Sacramento, CA: 23 November 1999).

8. See EdSource, "How California Compares: Indicators and Implications for Our Public Schools," (Menlo Park, CA: EdSource, November 1998), http://www.edsource,ors/htmfiles/lrn_facts.htm

9. School construction and maintenance is funded in accordance to School Facility Program (SB50), which provides state matching funds to local efforts—50/50 for new construction, 80/20 for modernization of existing facilities, and 100% of costs for new construction or modernization in "hardship cases."

10. See California Department of Education. "School Facilities Fingertip Facts." School Facilities Planning Division, (Sacramento, CA: California Department of Education, January1999).
http://www.cde.ca.gov/dmsbranch/sfsdiv/docs/facts.html

11. See Edsource, "Election Brief: Proposition 26, the Majority Rule Act," (Menlo Park, CA: EdSource, January 2000). See also Legislative Analyst Office, "Proposition 26: School Facilities, Local Majority Vote, Bonds, Taxes," (Sacramento, CA: Legislative Analyst Office, November 1999), http://www.lao.ca.gov/initiatives/2000/26_03_2000.html

12. The Legislative Analyst Office estimates that since 1988 local level discretionary funding has decreased from a high of nearly 78% of general budget funds, to a low of 68% in 1999. Many discretionary dollars have been replaced with restricted categorical program funds. See Legislative Analyst Office, "2000-01 Budget Analysis and Perspectives & Issues" (Sacramento, CA, Legislative Analyst Office, January, 2000).
http://www.lao.ca.gov/analysis_2000/analysis_2000_contents.html

13. The requirement of a two-thirds vote to pass general obligation bonds has existed since 1879, as written in the state's original Constitution.

14. The state provides "hardship funds" to districts that display a financial need. However, a district must meet specific criteria, including an outstanding bonded indebtedness rate of at least 30 % of bonding capacity or certification that the district has repeatedly failed to pass a school bond measure. Proposition 1A which passed in 1998, allocated only 15% ($1 billion) of the $6.7 billion reserved for K-12 education for hardship funds. By January 2000, 78% ($388 million) of the initial $500 million authorization of hardship funds, had already been disbursed to school districts. The remaining $500 million will be disbursed during the next authorization beginning July 1, 2000. See California Department of Education, "School Facility Program (SB 50)," Office of Public School Construction. (Sacramento, CA, California Department of Education, 2000).

15. EdSource, "California's K-12 School Finance System," (Menlo Park, CA: EdSource,1995).

16. For the purposes of this paper, categorical programs include all state programs except school district revenue limit allocations. Categoricals are either targeted on a class of districts, schools, or pupils, or have restrictions on how the funds may be spent, or both. Funds for adult education and state bond funds have not been included in this analysis. As explained later in the text, reconstructing the total picture of categorical allocations would be extremely costly, and it is recognized that a number of small categoricals have been omitted from the table or their funding is included in other categoricals. Best efforts have been used to reconstruct the history of categorical funding, but these data would likely not withstand a financial audit.

17. This is likely to be an underestimate for several reasons: (1) some small, obscure programs cannot be located in budget documents; (2) categorical programs supported by Funds other than the General Fund have not been included (for example, The Petroleum Violation Escrow Account was the funding source for school bus replacements in excess of $50 million); (3) school programs administered by agencies other than the Department of Education have not been included (such as the Department of Alcohol and Drug Abuse Prevention); and (4) a number of programs have numerous sub-programs (for example, Child Care is composed of more than ten identifiable programs, and Economic Impact Aid has bilingual and compensatory components).

18. U.S. General Accounting Office "State Efforts to Equalize Funding Between Wealthy and Poor School Districts," (Washington, DC. GAO/HEHS-98-92, 1998).

19. An equity index commonly used by school finance researchers– the coefficient of variation – was calculated for all states by researchers for Education Week in developing Quality Counts 2000. California got a grade of "C", along with 17 other states. The relative inequity in spending per student among districts in California is 11.4%.

20. See extensive analysis from the National Research Council on this point. Making Money Matter, 250-3.

21. A thorough discussion of educational adequacy, from both historical perspectives and recent implementation experiences can be found in a recent volume written by the National Research Council: See Helen Ladd, Rosemary Chalk, and Janet S. Hansen, eds., Equity and Adequacy in Education Finance (Washington, DC, National Academy Press, 1999).

22. Adapted from Making Money Matter, p. 107.

23. See Guthrie and Rothstein in Equity and Adequacy in Education Finance, (National Academy Press 1999).

24. See Management Analysis and Planning Associates, 44.

25. See Making Money Matter, 119.

26. A description of the Oregon Education Model, and the data collection infrastructure can be seen on the web at http://dbi.ode.state.or.us/qualityed/

27. Making Money Matter: Financing America's Schools, 112.

28. See Norton Grubb, N. and Luis Huerta, "Straw into Gold, Resources, and Results: Spinning out the Implications of the "New" School Finance," (Berkeley, CA: PACE, School of Education, University of California, Berkeley, forthcoming).

29. A. Summers and A.W. Johnson, The effects of school-based management plans, in Improving America's Schools: The Role of Incentives, eds. E. Hanushek and D Jorgenson (Washington, DC: National Academy Press, 1996).

Chapter 5

Governance and Accountability

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A Drift Toward State Control of Education

Although many countries have established nationally regulated public school systems, the United States has always emphasized local control of education—leaving most questions of what and how children are taught to the discretion of 15,000 local school districts. During the last two decades, however, policy-setting power in California public education has become increasingly centralized at the state-level, and this shift of authority over academic policy has become a major concern for local school officials.

The perennial question of how we raise and teach our children continues to energize–and sometimes divide–our political leaders. With over 300,000 employees of schools, K-12 education consumes the largest percentage of the California state budget. Therefore, it is easy to see why state politicians don't want to leave educational issues to local authorities. Seats on the state legislative education committees rank only below those of appropriations and revenue committees in terms of status and desirability. Indeed, California considers hundreds of education bills each year, so the discretion of local officials in school policymaking shrinks as state education codes and regulations grow incrementally.

There has been an explosion in the number of regulations affecting schools that has resulted in a 4,000-page California State Education Code, including court interpretations. For example, state and federal courts, which in the past had little to do with shaping school programs, today set detailed priorities about issues ranging from student rights to special education. Meanwhile, on the federal level, Congress provides funds for everything from schools in low-income areas to education for limited-English pupils–but, inevitably, with strings attached. At the same time, California limits the policy prerogatives of local governments through school finance reform, accountability, and regulations. Several initiatives including Propositions 13 (property taxes) and 227 (bilingual education) constrain local school board authority, and Chapter 4 provides a recent history of categorical program controls.

Still, as this chapter demonstrates, governance of California's schools is far more complex and problematic than any simple picture of the state gaining the upper hand over local school districts. If the state has gained more

power so have, quite paradoxically, many individual schools which increasingly make many of their own hiring, budgetary, and pedagogical decisions. And local school districts, while they are comparative losers, still wield a lot of influence they are not likely to surrender.

This chapter begins by looking at the historical and political context of school governance in California, followed by a close analysis of where we are now in terms of shifts in roles and power on the part of various education entities. We devote the concluding section to an analysis of how the Davis administration has further consolidated power in Sacramento, and at the various implications that this may have for California education over the long haul.

The Historical and Political Context of School Governance in California

Under the U.S. Constitution, education is a power reserved to the states. The basis for state control over education was well established as early as 1820 by constitutional and statutory provisions. The operation of most schools was delegated by states to local school boards. The specifics of K-12 public education governance systems vary by state. Notwithstanding such variances, though, it is possible to list the primary components of California's K-12 public education governance system.

Historically, California has controlled local education through several means. The state establishes minimums below which different kinds of local school operations cannot fall. The rationale behind such regulations is that the state's general welfare requires a basic educational opportunity for all children, and thus pupils may be required to attend school a minimum number of days each year, or their instruction must include certain courses, taught in certain ways, with teachers who have a particular kind of training. These early California requirements were originally intended to raise standards in rural schools. In order to conduct this minimum program, California requires school districts to levy a minimum property tax and guarantees a certain level of expenditure, known as the revenue limit. California has also specified procedures for the reorganization of school districts. For example, around 1900, California abolished the decentralized ward-based city

State	Regional/County	School District	School	Others
Governor	Regional/County Board	Local Board	Principals	Mayors
Legislature	Regional/County Superintendent	Local Superintendent	Teachers	Judges
State Board	Regional/County Department	Local Department	Parents	Unions
State Superintendent			Local School Council	Business Leaders
State Department				Community Leaders

Table 1. Primary Components of the State K-12 Public Education Governance System

school boards. In the 1950s, California began to require consolidation of school districts and eliminated so many that the number shrank to the one thousand we have today.

Only during the past 40 years has the state emerged as the primary policy and fiscal agent in the delivery of educational services to California's school children. Court decisions and legislative prescriptions regarding the equalization of school funding, and the loss of local property tax discretion through Proposition 13, contributed heavily to this transformation. The state's own capacity to act forcefully expanded as well. The number of legislative staff increased, enlarging the legislative, oversight, and research capabilities. Similarly, federal educational programs required the state department of education to approve local applications for federal funding and provided federal dollars for expanding state administration purposes.

During the same period, increasing turbulence locally (school violence, desegregation, taxpayer revolts, and the like), coupled with declining test scores, eroded the public's confidence in local officials and professional educators. State testing and minimum proficiencies for students and staff followed. Omnibus legislation such as Senate Bill B813 in 1985 included a required core curriculum, and categorical programs further chipped away at the discretion of local governing boards and superintendents to establish a local agenda. Alignment of state tests, texts, and curriculum guides increased state influence over what was taught.

During the 1980s, education came to be seen as centrally and crucially important to California's ability to remain competitive economically, and to train a diversifying workforce to succeed in an increasingly technological labor market. The state's interest in educational productivity and economic development became intertwined. From the state's perspective, the need to secure a competitive economic capability overshadowed its historical faith in local control. In short, local turbulence, public distrust of local officials, new state capacity to intervene, and a belief that higher and uniform educational standards served the state's overall interests compelled state officials to assert control it long ago ceded to local school districts. In many respects, California schools now constitute a state system that is operated locally. The state controls approximately 84 percent of school funding and uses a four-volume Education Code for regulation. The instruments of state educational governance include the governor, legislature, chief state school officer, State Board of Education, State Department of Education, and several other state agencies.

Secondly, the intensity and scope of state policy actions, like California's omnibus reform legislation, Senate Bill 813, and subsequent administrative initiatives, have shifted the balance of control away from local districts and toward the state capital. Local teacher bargaining contracts centralized decision authority within districts, but also dispersed authority to legislatures, courts, and public administrative agencies, like the California Public Employment Relations Board. In short, state policy and ballot initiatives from the top have encroached upon the authority of local decision makers, squeezing the "discretionary zone" of their activity into an ever smaller area. At the same time, increasing demands from special interest groups such as those representing

handicapped and gifted children have diminished the ability of governing boards and superintendents to set a district's agenda. School board members and superintendents now more often react to other forces (changing coalitions, for example), and they do so with less public confidence.

Increased state control is just one example of how local school boards are no longer the preeminent governance institution. Another example is the fact that teacher preparation and preschool programs do not fall under local school board supervision. In addition, the impact of collective bargaining has reduced school boards' discretionary powers in many jurisdictions. The legacy of changes over the past 40 years makes it hard to tell who, if anyone, is in charge of California public schools. One certainty, however, is that local decision makers are less in control. The focus of state education policy in the 1970s was primarily on programs earmarked for handicapped, disadvantaged, or other special-needs pupils. But in the 1980s, state education policy shifted to mandating educational practices in those localities concerning what is taught, how it should be taught, who should teach it, and how results should be measured.

California requires the provision of services for certain things, such as education for the handicapped. Indeed, a major argument for state control is that it can ensure equality and standardization of instruction and resources. Local control advocates, however, assert that local flexibility is desirable because the technology of teaching is so unclear and local needs are so diverse. In essence, the argument over local control focuses on the trade-off between two values—equal (and adequate) treatment and freedom of local choice. California has tried to bring about greater efficiency and accountability in local education through devices such as required state testing and payments for increased test scores. The local control advocates counter that educators in general and states in particular lack the knowledge to specify the most efficient educational methods. Consequently, they insist that local options are more desirable.

It is certainly true that school boards provide a critical local perspective to policymaking. In a country committed to representative democracy, school boards still provide citizen access that remote state and federal capitals cannot duplicate. At the same time, the public wants much more non-local intervention when it comes to educational standards and accountability, programs for special-needs pupils, and many other areas. Consequently, Governor Davis featured a new high school graduation exam and a test-driven accountability system as his top priorities in 1999.

The Impact of State Reform on Local School Policy

PACE studies have illuminated the increasingly complex web of education governance, which has manifested itself in part in the growing influence of individuals and groups external to the local school board and central office. The pattern over the last decade has been for state authorities (legislators, governors, and chief state school officers) to increase their influence over funding and policy from the top.

Simultaneously, employee unions, parents, interest groups, and private agencies (testing and accrediting) have squeezed the discre-

Year	K-12 Proposition 98	Revenue Limits	Percent Discretionary
1990-91	$18.6	$15.5	83.4%
1993-94	$21.2	$15.9	75.0%
1996-97	$26.8	$19.6	73.1%
1999-00	$33.8	$23.0	68.0%

Table 2. K-12 Proposition 98 Discretionary Spending Share (Current Dollars in Billions)
Source: Legislative Analyst's Office Budget Analysis, 2000-01, E68

tionary zone of school board control from the bottom. Local central school authorities are sandwiched in by these contending forces. Clearly the zone of policy discretion at the school district level has grown smaller over the past 30 years. The expansion and shift in state education strategies in the 1990s *did not* include a rethinking of the local school board's role, nor did it envision the board as a leader for implementing change. However, a review of the impact of intensified state activity shows that although school boards were not initiators of many new state policies, they were often quick to implement state policies that could be easily accommodated such as increased graduation courses.

The changing governance picture is more complex than a zero-sum model where one level expands its influence (e.g., state) at the expense of the lower (local) level. Many California state policies, for example, leave considerable room for flexibility and enhance local initiative. Education policy, then, involves mutual influence among education policy levels, not zero-sum. Some state mandates—e.g., requiring a semester of economics—are strongly directive of local behavior. But mandates and regulations have not been the main strategy through which the state guides and influences local curricular content. California curricular frameworks and content standards in science and social studies, for example, are not mandates; they provide a framework rather than a prescription for what must be taught. Consequently, many local districts use the state curricular framework as a springboard by which they develop their own local approaches to instruction. Furthermore, state policy is characterized by low enforcement and imprecise policy directives, both of which increase local autonomy. Nevertheless, despite this autonomy, many local districts not only complied with California's 1983 reform law (SB 813) but built on the state-based mandates to add new policies of their own . In their study of six states (including California), researchers from the Consortium for Policy Research in Education concluded:

> Local activism in reform has been noted in several studies of the reform movement.... This local activism takes a variety of forms: staying ahead of the state and of peers by enacting policies in anticipation of higher state policies to meet specific needs, and using state policies as a catalyst for achieving district objectives. The clearest current manifestation of local activism is the curriculum alignment and standardization movement underway in many districts.[1]

These newer studies of the impact of state reforms indicate that both state and local control can increase as a result of state policymaking.

Finally, school boards and local administration must play a key role in making sense of a multitude of often confusing state initiatives. Local educators need to ensure that various components of state reform are coherently linked.

Centralization and Decentralization: Divergent Trends

An offsetting trend to state policy centralization is the increasing operational authority of individual schools. The operational details of school-site devolution vary a great deal. In some models, the only ceding of central office discretion is over trivial matters such as the spending of budgeted funds for instructional supplies. This typically amounts to only a small proportion of overall school money, even when per pupil allocations are aggregated for all students in a large secondary school. At the opposite extreme are approaches where teachers, as a collective, make decisions regarding employment and retention of new staff, allocate budgets, determine discipline policy, and control the daily school schedule. In between are variations where the authority is allocated to principals or heads but not to teachers, or hiring discretion is allocated to a school but selection can take place only from a pool of recruits compiled by central, district-wide authorities.

School-site discretion appears at first glance to be paradoxical. In the face of growing state centralization of school decision-making, why would greater operating authority be ceded to school sites? The frequent justification is that, whereas it is necessary for central authorities to specify the *what* of schooling, it is not appropriate, or even sensible, for them to specify the *how*.

Another common rationale for decentralization is that teachers are "professionals." State specification of their instructional behavior is therefore seen as demeaning. Presumably teachers know what their students need and are trained to meet those needs. Not enough is known about instruction to take the risk of specifying teaching behavior centrally. Under conditions of technical uncertainty, better to permit a "thousand flowers to bloom."

California's School Choice Movement

A review of education governance would be incomplete without consideration of California's robust movement to broaden parental choice and diversify the kinds of schools available to children. This accelerating push to introduce market competition and directly empower parents represents a second form of accountability, apart from that involving centralized mechanisms such as student testing and sanctions overseen by Sacramento. Under choice, the idea is that school staffs are directly accountable to parents and community values, not to Sacramento. Some alternative institutions—like publicly funded charter schools—are theoretically accountable to both.

PACE's study of school choice in California and nationwide, published in 1999, details what we know about the movement and its fundamental effects on public and private schools. One new discovery: one-fourth of all students no longer attend their neighborhood school.

Instead, they attend a magnet or charter school, participate in a voucher experiment or a much larger cross-town transfer program.[2]

California remains a national leader in terms of creating new charter schools (289 now operate statewide, not including three all-charter districts), authorizing open enrollment options, and hosting corporate-financed voucher experiments in Los Angeles, Oakland, and San Francisco. Table 3 reports on the scope of choice enrollments statewide and in selected urban school districts.

Despite the steady growth and diversification of the choice movement, we know very little about whether this second form of (market) accountability yields significant effects. The recent PACE study did uncover consistent evidence of parental satisfaction with their chosen magnet or charter school. But hard evidence of achievement gains, relative to garden-variety public schools, remains scarce.

Governance at the State Level: K-16 Gaps

Setting aside local boards for a moment, California has numerous institutions that have a role in state governance and standards:

- Regents of the University of California
- Trustees of California State University
- Board of Governors of the California Community Colleges
- State Board of Education
- California Post-secondary Education Commissions
- California Department of Social Services
- California Economic Development Department
- Governor's Secretary of Education
- Superintendent of Public Instruction
- Assembly and State Legislative Committees
- State Job Training Coordinating Council

California created an Education Roundtable in 1981 that focuses on issues that span lower and

Program	Student Enrollment
Magnet	207,893
Charter Schools	37,436
Vouchers	4,433
Open Enrollment	238,598
Private Schools	615,011
Other	165,380
TOTAL	1,026,403*

Table 3: California Students Annually Participating in School Choice (1997-99)
Sources are detailed in Fuller at al. (1999)
* Figure does not include open enrollment count because of overlap with other choice options. Total amount may be significantly larger.

higher education. Roundtable membership consists of the UC president, the CSU and California Community College Chancellors, the Superintendent of Public Instruction, the Director of the Post-secondary Education Commission, and the Chairman of the Association of Independent California Colleges and Universities. But the Roundtable has made only partial progress in aligning K-16 education assessment standards.

As Chapter 8 demonstrates, these K-16 disjunctures will be hard to fix unless there is an institutional center for California K-16 reform. There are few regular opportunities for K-12 educators to discuss standards issues with college and university faculty or policymakers. The professional lives of K-12 and higher education proceed in separate orbits.

K-12 State Governance Structure and Locus of Control

California's recent struggle in carrying out a continuous and coherent education reform agenda can be attributed partly to a fractured governance structure, and the partisan conflicts and alliances that arise with each election. The state superintendent of public instruction, who is elected, is also the executive officer of the state board, but must get approval for any curriculum-related policy from the state board. The governor appoints the state board. The governor, meanwhile, has authority over the budget, except when otherwise directed by the legislature. The state board has no day-to-day control over the actions of the CDE but approves policy drafted and carried out by the CDE. The legislature, meanwhile, can mandate policies, but has traditionally charged the state superintendent with carrying out and regulating key education laws.

In short, no single entity or individual at the state has the authority to set the course for education reform, carry it out, and alter its course when something goes wrong. The lack of a single entity or individual at the state level who is accountable for education, combined with the disruptive partisan maneuvering, has led some to suggest that the only solution is to eliminate an elected position for the state superintendent. Such a change would vest ownership for shaping and carrying out an education agenda firmly in the hands of the governor. Several state officials, from both ends of the political spectrum, suggested that the governor appoint the superintendent. As one legislator put it: "No one's ever heard of electing the U.S. secretary of education." A similar recommendation was made in 1996 by the legislatively created Constitutional Revision Commission, enacted to examine statewide governance and fiscal structures, but legislative proposals to make the change have not gone very far.

Declining Role of the Department of Education

The CDE, or more precisely—the state superintendent of public instruction—is charged by the legislature with regulating and implementing the state-funded education programs. However, for the most part, the superintendent's position is that of a bully pulpit—shaping a compelling message, rallying forces, and keeping critics at bay. Many agree that Bill Honig, Superintendent of Instruction from 1982 to

1992, knew how to capitalize what little policy-making leverage his position offered because he understood all the pieces of the larger system in which he operated and how these pieces interacted. As one person explained: "CDE was not his legacy, so he exported his initiatives." Accordingly, Honig recognized that genuine reform would have to be fostered from the bottom-up; therefore, he supported the expansion of an infrastructure of professional development networks, run by higher education institutions and led by teachers.

To further his curriculum objectives, Honig made structural changes to the CDE, reorganizing staff units around subject matter areas. Under his predecessor, 'Wilson Riles, the CDE was organized by special needs students and categorical programs aimed at serving such populations, (e.g., Title I, Migrant Education, Special Education). CDE involvement in curricular matters during that time was purposefully minimal. One CDE employee from that time recalled Riles saying, "Our job is to get money to the schools and to leave curriculum to the locals."

In the 80s, however, curriculum became the centerpiece of the CDE's systemic reform strategies. To build further support and provide professional development opportunities around state curriculum policies, the CDE worked collaboratively with cross-sections of state and local curriculum specialists and teacher-leaders in the development of the frameworks. During this period, the CDE was viewed as an expert institution with the professional capacity for leading such state-level curriculum efforts. With rare exception, the state board approved curriculum policies put forward to the board by the CDE. In fact, under Honig's reign, the state board agenda and decision-making docket was largely determined by the CDE staff and the board often deferred to their policy recommendations.

But by the early 90s, the CDE's glory days were quickly coming to an end. Both the board and the governor became disenchanted with Honig and critical of the CDE's policy-making role. Honig's battles with State Board of Education President Joe Carrabino eventually led to a law suit filed by the board challenging the CDE's policy authority and allegations about Honig's fiscal improprieties. These issues distracted him, say observers, at a critical juncture for the CDE, that is, just at the time when the CDE was beginning to develop CLAS.

The Eastin Era

Delaine Eastin, the chair of the Assembly Education Committee, was elected state superintendent of public instruction in 1994 (and defeated Maureen DiMarco, Governor Wilson's secretary for education and child development). A diminishing operating budget has worked against Eastin in the last six years; the CDE has lost nearly 50 percent of its staff, leaving the CDE, until very recently, with just one mathematics and science specialist. Both Governor Wilson and Davis cut the CDE budget significantly, and "with those kinds of cuts, you don't always do them strategically," remarked one CDE official. Not only does Eastin have less resources with which to work,

but she has less fiscal autonomy then Honig, and must now pass budget items through the State Board of Education.

Rising Role of the State Board

Throughout most of the 1980s, the board's packed docket of decision items meant more time was spent making administrative decisions, such as focusing on the approval of waivers, than on engaging in serious, substantive discussions about complex policy issues. When such longer discussions did occur, they were usually crisis-driven (e.g., creation science in state- adopted textbooks). For the most part, the understaffed board also was dependent on the CDE for administrative support. The CDE had much more free reign and authority during this time. As one staff member recalled: "In the old days, Honig would just issue an advisory, but now you have to run everything through the board."

By 1990, however, the state board became more proactive as tensions between the governor, the board, and Honig grew. Some of this tension, say observers, was due to personality conflicts, while some of it was due to a lack of clarity in the law about the delegation of powers among agencies. In September of that year, Joe Carrabino, the president of the board, complained to the press that the superintendent treated the state board like an "advisory board" and escalated the feud by demanding greater oversight over the CDE's budget and review of all policy directives, referred to as "underground regulations."

Honig refused to comply with the request on state constitutional and other legal grounds. In response, the board decided to sue. Since the board was technically staffed by and considered a part of the CDE, the board was supposed to use the same general counsel as the defense, State Superintendent Honig. The state attorney general, however, agreed the board could seek outside counsel. As a result of that suit, the 3rd Appellate Court in 1993 ruled in favor of granting the board more policy-making authority than the state superintendent wanted.

In recent years, the board has assumed a more active role in influencing legislative proposals. State board members have testified on several pending legislative proposals. In the aftermath of the 1994 election, the board also became part of a powerful triumvirate that included Wilson, a Republican governor, the Republican-controlled Assembly, and the Republican state board, whose members were appointed by the governor.

Further strengthening the board's position was the approval of an additional $250,000 added to its budget to expand the board's staff of one professional staff member to five, including an independent legal counsel.

Increasing Legislative Intervention

Throughout most of the 80s and early 90s, the legislature was known for passing volumes of often disparate, piecemeal education laws. Term limits also have added to the political tensions and contributed to a loss of institutional memory about why prior reforms worked or did not work. The net effect has been highly variable reform efforts that have little chance of being comprehensive and cohesive.

Nevertheless, starting in 1995, legislators harnessed existing state and federal categorical

resources around literacy, and improved the conditions for literacy by lowering class size in K-3 grades from an average of 30 to 20. Not only were these initiatives unprecedented in terms of the consensus they represented among an otherwise divisive body, but they also indicated an unusual level of intervention and top-down control by state-elected officials into the affairs of curriculum policy, particularly reading. Traditionally, reading policy has been left in the hands of the state board, with even more discretion given to local districts and schools on how to implement what students should know and be able to do on a day-to-day basis.

Part of this new legislative intervention into state curriculum may stem from the ongoing tension between legislators and the civil servants who are charged with turning words on paper into action. As one legislator explained, he and his colleagues have no choice but to hand over a policy to the superintendent and his or her staff; they are, after all, considered the "technicians." Yet, at the same time, he explained, there is always the risk that CDE civil servants may go too far and "extrapolate beyond the law."

The Governor's Office Becomes Preeminent

The governor has emerged as the most powerful force in determining education policy. Prior to the 1994 election, most of Governor Wilson's education initiatives, including a series of voucher proposals (called " opportunity scholarships") and calls to streamline the 11 volumes of the state's education code, did not go very far. The governor was successful, however, in promoting the passage of Proposition 184 in 1994, an initiative aimed at curtailing publicly funded services for illegal aliens, including educational services, although courts have overturned most of its provisions. In 1995, Wilson, under pressure from Assemblyman Steve Baldwin and other conservatives in the Assembly, threatened to return federal funds for Goals 2000, School-to-Work, and other programs because they were considered too restrictive and impinged upon local control. But Wilson used class-size reduction as his key education policy in 1997 and hoped a student-to-teacher ratio of 20-1 would significantly improve the conditions that contribute to higher reading performance.

State Governance Under Governor Davis

In 1999, the first year of the Gray Davis administration, the power of the governor in education policy soared to unprecedented heights. California has always been recognized as a strong governor state, with the governor having substantial power, especially with the line-item veto. Coupling this traditional power with his party's control of both houses of the legislature, a strong mandate from the voters, and a sharp focus on a single subject (in his State of the State address in 1999, the governor announced that education would be his "first, second and third priority"), Governor Davis was in a unique position to launch educational reform. He wasted little time in seizing the initiative. Soon after his election, he announced the appointment of Gary Hart, former Chair of the Senate Education Committee as his new Secretary of Education and Child Development. Hart, a long-time prominent

advocate for school reform, arguably was the best possible appointee for that position, having earned the respect of legislators from both sides of the aisle after a long and distinguished career in both houses of the legislature.

Davis also announced that he would convene the legislature in a Special Session on Education shortly after his inauguration. During this whirlwind of activity and in the budget deliberations which followed in the early days of 1999, the governor laid out an historically ambitious set of reform initiatives. This governor set a new standard for executive involvement by repeatedly signaling with great specificity what he deemed acceptable in the way of amendments. While legislative deliberations, for the most part, improved the original proposals, the legislature nevertheless played a secondary role, essentially accepting the governor's avalanche of initiatives. The governor's initial reform proposals included the following:

A New Accountability System

The centerpiece of the governor's education plan was accountability. The new accountability legislation requires that every school be given a ranking on the Academic Performance Index (API) by January of 2000. Schools are also given specific targets for expected improvement. Schools that meet or exceed these targets by a significant amount will be rewarded by additional funds, both on a per student basis (up to $150 per pupil) and for teacher bonuses (not to exceed $25,000 per teacher). In order to protect against simply rewarding schools with the highest scores—typically those with the most affluent students—schools are required to show comparable gains for students at differing performance levels. So far, although the legislation called for multiple measures of academic performance, the sole determinant of the API, because of data limitations, is the cumulative school score on the SAT 9, the state mandated norm-referenced achievement tests. In addition, 430 of the lowest performing schools (selected from schools performing in the bottom half of the distribution) are participating in the Immediate Intervention/Underperforming Schools Program (II/UUSP). These schools are eligible to receive funds to hire outside evaluators and work with their communities to develop plans to improve student achievement. Additional schools which fail to meet their targets in 2000 and in subsequent years will be provided with financial assistance to improve their performance. If, over time schools fail to show improvement a series of increasingly serious interventions may take place, possibly culminating in the ultimate sanction—the closure of the school.

New Reading Initiatives

The governor adopted a series of related initiatives, all aimed at improving reading skills. First the governor initiated a "Call-to-Action." reading campaign in an effort to involve a large cross-section of California's population in a massive effort to demonstrate that everyone is responsible for making certain that youngsters read. The governor also will reward $5,000 to up to 400 schools whose students read the largest number of pages. Books must be approved by both the teacher and the parent. In addition, reading academies have been established to ensure that every youngster learns to read. These academies operate before and after school and during the summer to provide intensive reading instruction for students with read-

ing difficulties. The governor also involved the University of California and the California State University system to provide Professional Development Institutes for Reading to develop skills for up to 6,000 teachers who would then participate in direct instruction or in supervising other teachers. This is a massive, unprecedented effort at professional development which is likely to grow even bigger: the governor's most recent budget calls for an increase to 20,000 K-3 teachers participating in the Institutes.

High School Exit Examination

Beginning with the class of 2004, in order to graduate from high school, students must successfully pass this to-be-developed test. The test must be aligned with state academic content standards. In spite of early developmental difficulties, Spring 2001 remains the target date for the first administration of the high school exit examination.

Peer Assistance and Review

The final major piece of the governor's special session legislation was devoted to establishing a teacher Peer Assistance and Review (PAR) system as a feedback mechanism that allows exemplary teachers to assist veteran teachers in need of development in subject matter knowledge and/or teaching strategies. PAR requires teachers, administrators, districts, and unions to work together to improve the quality of instruction. Districts must establish integrated professional development and performance assessment systems. PAR will replace the existing Mentor Teacher Program by July 1, 2001, but districts may begin to transition to the new program in the current year. So far, over half of the districts have already applied to transition in the current year.

Other Initiatives

In addition to the above, the governor and the legislature have taken other legislative and budgetary actions, including increased funding for standards-based instructional materials, English Language Development Institutes for grades 4-12, and an English Language Development test to assess student acquisition of English language skills. Funding was also allocated to decrease class size in selected high school classes. Efforts to boost the teacher workforce include incentives to increase the numbers of new teachers and to retain teachers already in the system, increased beginning teacher salaries, increased incentives for teacher aides to become teachers, and bonuses for teachers who obtain National Board of Professional Teaching Standards certification.

The governor's 2000-01 budget is primarily devoted to the teacher quality and supply issues, which we fully discuss in chapter 6. In summary form, the governor places significant emphasis in his new budget on professional development by adding new professional development institutes administered by the University of California in partnership with the California State University. The model for these institutes is the highly successful Subject Matter Projects, a University of California-based network devoted to developing school teams consisting of new teachers, experienced teachers, and administrators who are expected to form a core of expertise to carry back to their schools. The budget proposes an unprecedented expansion of this concept to provide

professional development for teachers and administrators from schools with low SAT-9 scores for the following kinds of institutes: Grade 4-6 Mathematics, Grade 7-8 Algebra, High School Mathematics, High School Algebra, and High School English. Including the substantial increase in the dollars appropriated for the subject matter projects (from $15 million to $35 million), the new budget calls for approximately $120 million in new monies for professional development purposes.

Summary: An Ambitious if Less than Coherent Reform Agenda

Taken together, all of these initiatives represent a dizzying array of educational reform ideas designed to improve student achievement in California schools. More than any time in the state's history, education policy is driven not by locally elected school boards, nor by the popularly elected state legislature, nor by the superintendent of public instruction, nor by the newly empowered state board of education. Even the politically powerful teacher unions and administrators of school boards are now more limited in their influence. The governor, favored by a strong electoral mandate and driven by a deep and abiding public concern about the quality of education in California, is the progenitor of the ambitious reform plan. He plans to take responsibility for it, too, having publicly stated that he will not deserve re-election if test scores do not improve. The governor's involvement in education is not only broad but deep, as he has often concerned himself with even the most minute details of the reform agenda.

It is much too early to make judgements about the success or failure of these reform initiatives, though there is no denying the many implementation problems which have occurred. First and foremost, most observers agree that the basing of a high stakes accountability system on a single measure, the SAT 9—a test normed on a national sample of students who bear little resemblance to California's school population and based on a sample of questions only loosely reflective of California's new standards (although the test has been augmented with items that more clearly reflect the standards)—is a severe problem. The SAT 9 has also come under increased scrutiny because of a series of scoring and reporting irregularities. Second, the Academic Performance Index is flawed. Although originally designed to reflect a number of indicators of school performance, because of severe data quality problems there are no other data currently collected by the CDE which can reliably be added to the school quality formula. Thus, relying only on a single measure of performance is highly problematical. Third, data designed to allow schools to compare themselves with schools with similar student socioeconomic conditions is also seriously flawed—districts failed to report information in a consistent and coherent manner—requiring the Department of Education to throw out the comparative numbers and to go back to the districts for accurate data.

The Immediate Intervention Underperforming Schools Program II/USP has been faced with similar implementation problems—getting planned assistance and a sufficient pool of quality evaluators in place in such a short time has proven difficult.

A recent study by Far West Laboratory and Management, Analysis and Planning on the state of accountability in California points to serious implementation problems. Most districts are barely underway, and few have implemented a satisfactory, standards-based accountability mechanism. This highlights the real dilemma in California's accountability efforts: the pressure to adopt accountability provisions and to do it quickly has so far outstripped district and state capacity to adequately respond to the many problems full-scale implementation brings. On one hand, pressure from the general public and the business community to address the problems facing schools is immediate. On the other hand, to do it right requires money, time, and careful planning. School districts making the case that more time and money are needed for reform are viewed as recalcitrant. The end result is a system which requires immediate action and discounts caution. It is important that the simplest solution—abandoning accountability as a reform strategy—not prevail. But California's long reliance on "quick fixes" should disabuse us of the effectiveness of any strategy that abandons careful deliberation. School district tolerance of stop-and-start state initiatives has long passed and is being sorely tested. Instead of moving ahead with more initiatives the state should continue to incrementally improve alignment and information gathering. Work already underway should be continued. Developing an English language learner test; adding standards-based items to the SAT 9; aligning textbooks, curriculum frameworks, professional development activities, and teacher preparation program strategies—these are all positive strategies that must be maintained.

Even though difficulties in implementing an accountability implementation abound, it is nevertheless critical that the state stay the course. PACE, therefore, does not advocate abandoning the accountability thrust, but urges the governor and the legislature to correct the problems which exist. If necessary they should provide additional resources, most notably time, to make certain the state "gets it right." Most importantly, California must directly address the data problem. California's K-12 data collection system is simply not appropriate for the kinds of high stakes consequences involved in a sophisticated and complex accountability system. Absent quality data, the best efforts of teachers and administrators will likely come to naught. The proposed California Student Information System (CSIS) is a move in the right direction; the state must work to get it fully implemented.

As to the ultimate effectiveness of the vastly increased role of the governor in policy making, that too must fall in the "too early to tell" category. Part of Governor Davis' early successes can partly be attributed to the extraordinary health of the economy which continues to generate huge revenues, far exceeding even the most optimistic projections. There is also the euphoria among Democrats in the legislature who, after 16 years, finally have one of their own in the governor's office. These Democrats were abundantly willing to support the new governor and his initiatives, many of which squared with their own ideas about education reform. However, early in the second year of the Davis administration, there were signs that the governor's hands-on, "my way or the highway" approach had begun to chafe legislative leaders

and some gubernatorial appointees. The governor offended many legislators with his remark that their job was to implement his vision. Gary Hart's resignation as the Governor's Secretary of Education is, by any account, a significant setback. Hart was enormously successful in working with the legislature. Furthermore, the second round of the governor's education budget proposals have come in for much heavier criticism, as school districts and powerful statewide teacher's union are decrying the loss of local flexibility and their inability to meet the collective bargaining demands of their teachers, administrators and classified employees. The California Teacher's Association is currently circulating an Initiative for the November ballot which would bring California's expenditures for education up to the national level. The governor adamantly opposes this additional restriction on budgetary flexibility.

Elizabeth Hill, the respected Legislative Analyst, in a particularly critical annual budget analysis, points to several concerns with the proposals in the governor's budget:

- They are too centralized, leaving little flexibility for local education agencies directly responsible for delivering instruction. For example, the professional development institutes are provided only by UC administered programs, only in the funding portions allocated and only for the purposes specified. The Analyst makes the case for allocating those dollars directly to districts through staff development block grants.
- They expand too rapidly—for example, the PDIs increase from about 25,000 trainees in 1999-00 to 93,500 in 2000-01. The Analyst argues that such an expansion severely overtaxes the capacity of the University to respond, thereby undermining program quality.
- They make scores on the SAT-9 the sole criterion for eligibility for the bulk of the professional development dollars. Dollars instead should flow to schools based on demographic and socioeconomic factors.

All of these issues will play out in the next few months of the current legislative session. While the road ahead may be bumpier than his first year, there are many factors which strengthen the governor's hand. It may be that the governor, because of substantial budget surpluses, will be able to meet the demand for more dollars with no strings attached by providing additional general fund revenue to school districts. He may also be able to enact many of his second year initiatives which do, we think, appropriately address the critical issues of teacher quantity and quality. Governor Davis enjoys strong approval ratings with the public, and his unwavering commitment to education will be helped along by a strong economy.

Notes

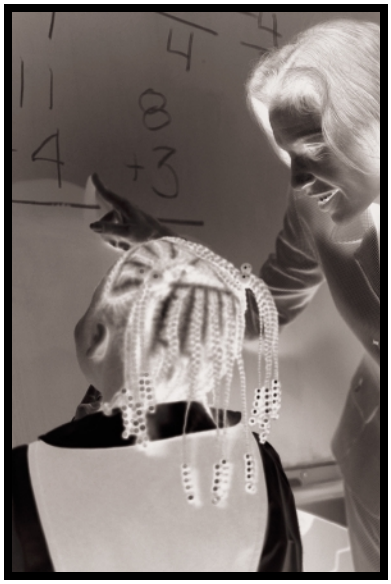
1. Susan Fuhrman and Richard Elmore, "Understanding Local Control in the Wake of State Education Reform," Educational Evaluation and Policy Analysis 12 (Spring 1990): 88.

2. Bruce Fuller, et al., School Choice: Abundant Hopes, Scarce Evidence of Results. (Berkeley, CA: Policy Analysis for California Education, 1999).

Chapter 6

Teacher Quality

The Center for the Future of Teaching and Learning



The convergence of public opinion, policy focus, and system dynamics is thrusting teachers and the quality of their teaching to the forefront of education reform in California. The public opinion poll *The Essential Profession* indicates that the public has a heightened understanding of how teacher effectiveness propels student achievement; consequently, it backs education reforms keyed to teacher quality.[1] Policymakers, while still focusing intensely upon school accountability and the implementation of explicit academic standards, are also making new efforts to expand the supply of qualified teachers. This will be a challenge, as the demand for teachers is soaring on account of student population growth, class-size reduction, an aging teacher workforce, and a high rate of attrition.

These forces tug in two very different directions. On the positive side, public and political support for placing teachers at the center of school reform efforts is at an all-time high, as demonstrated in a variety of polls and by the creation of multiple programs and legislative initiatives focused on quality teaching. On the other hand, two critical issues present a threat to this positive momentum:

- Most of the teacher quality initiatives undertaken at the state level are based on a belief in evolutionary change; policymakers often assume that better recruitment, larger public preparation programs, and support for newcomers in the early years will change the profession. While we should expect these efforts to have a positive impact over time, parents want consistently high quality instruction for their children *now*.
- The shortage of fully qualified teachers is being most severely felt in the most challenging inner-city and rural schools with substantial poor and minority enrollments. In 37 percent of the state's urban schools, 20 percent (one in five) of the teachers are under-qualified.

Consequently, a snapshot of the condition of teachers and teaching in the year 2000 is greatly affected by where the camera is aimed. For the "pretty" picture, we can look at rapidly expanding teacher preparation programs, full funding for beginning-teacher support programs, and stipends/rewards that supplement teacher salaries and provide incentives for professional development in much needed directions. For a much grimmer portrayal, we can

turn the camera on inner-city schools where class-size reduction has all too often spawned a mad scramble for anyone willing to teach. The poorest, most challenged schools are often left with little choice other than to hire untrained or under-prepared people with emergency permits or waivers, while their most skilled and experienced teachers are often recruited away by more affluent districts.

As California continues to focus on the teacher workforce as a key to educational improvement in the coming years, we are fortunate to have compelling research on what works, growing insight into what needs to be done, and unprecedented public support for the job at hand. But we are challenged by difficult and even deteriorating conditions that will make it difficult for us to catch up.

Within this context, the Center for the Future of Teaching and Learning is nearing the end of a two-year initiative called *Teaching and California's Future*, undertaken by a task force charged with understanding the issues that shape and mold the condition of teaching in California. Composed of a broad cross-section of education stakeholders and practitioners, the task force has as its central focus the development of high-quality teachers for all California classrooms. For the past two years, the task force has followed a two-fold strategy: taking an inventory on the current conditions of teacher development and building an effective coalition to promote and implement promising changes. Convened in January 1998, the task force spent much of the first year completing its inventory, resulting in the publications *An Inventory of the Status of Teacher Development in California*, *The Consistency and Coherence of Standards for California Teachers*, and *The Essential Profession*. During 1999, the task force concentrated on analyzing data, dissecting current policies, and formulating recommendations for its final report in December.

This chapter highlights the work of the Task Force on Teaching and California's Future to date: its shared understanding of research on teaching, its findings about the status of the teacher workforce today, and its thinking about the issues that must yet be addressed. In the following sections, we look at the academic case and public support for teacher quality; the policy initiatives aimed at teacher quality that are already underway; and the system dynamics that are driving a growing gap between teacher supply and demand. We then turn to the task force's work (released in December 1999) that identifies key policy issues around reinvigorating and reforming the teacher development system in California. Finally, we discuss some of the steps required to create a flexible, holistic system that will ensure that all of California's children have qualified, effective teachers.

Quality Teaching Counts: Research Shows It, the Public Knows It

The Education Trust, a foundation that promotes high academic achievement, points out that sophisticated parents have long jockeyed to place their children with teachers who "everyone knows" are effective. Too often educators and policymakers have blamed low student achievement on external factors not within a school's control: socio-economic background, lack of parental support and attention, language barriers, abuse and neglect at home, and so on.

Certainly these factors come into play when student learning is measured. But a stream of studies is now demonstrating that there are significant differences in teacher quality—and that effective teachers have a marked effect on student achievement.[ii]

A few examples of study results illustrate just how crucial teacher quality can be. Figure 1 comes from a 1991 Texas study that tracked student test scores with teacher quality, as measured by scores on a licensing exam, possession of a master's degree, and years of teaching experience. The study, which analyzed student test score variations in 900 Texas school districts, showed that more than 40 percent of the differences in math and reading scores in grades 1 through 11 could be accounted for by teacher expertise. Lower class size also had a small but noticeable affect. Combined, these two factors—teacher quality and class size—had a greater impact on student learning than home and family factors.[3]

A 1997 study in Dallas, Texas, also analyzed the relationship between teacher quality and test scores, examining what happens when students are exposed to multiple years of highly effective or less-effective teachers. Figure 2 shows that when two groups of similar-ability students were assigned teachers of varying quality over three years, the difference in reading scores was immense. Each group started at around the 60th percentile in reading achievement. At the end of sixth grade, the students who spent three years with highly effective teachers scored in the 76th percentile. The students who were assigned for three years to less effective teachers dropped to the 42nd percentile.[4]

Closer to home, a recent study by the Los Angeles County Office of Education found that 25 percent of the differences in student performance on reading achievement tests could be attributed to teacher qualifications.v Similar results regarding the link between teacher quality and student test scores have been found in many other states, including New York (1989), Alabama (1996), Tennessee (1996), and California (1999). Other studies have found

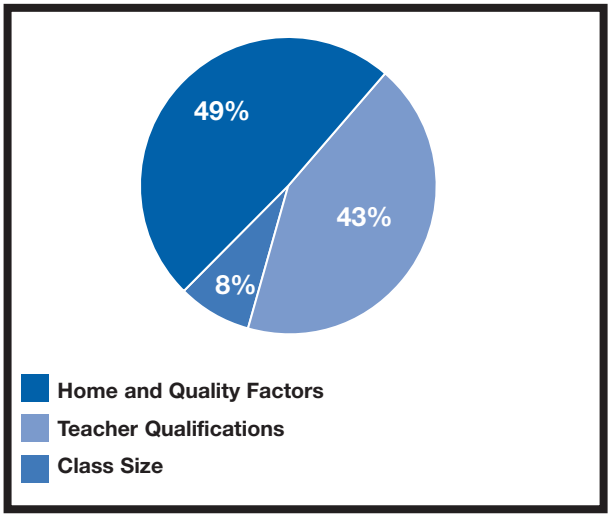


Figure 1. Influence of Teacher Qualifications on Student Achievement

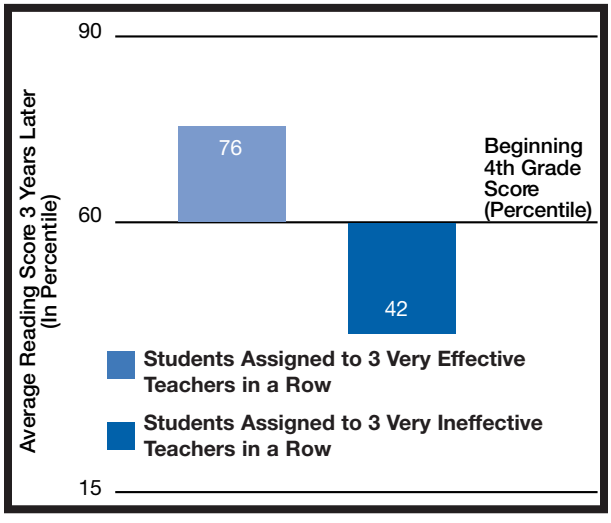


Figure 2. Teacher Effects on Student Reading Scores (Grades 4-6)

that students score higher and are less likely to drop out when their teachers are certified in the subject matter they teach, have master's degrees, or are enrolled in graduate studies.

Another important perspective on teacher quality comes from analyzing the economics of investing dollars in different school improvement strategies to achieve higher test scores. Figure 3 displays the accumulated results from 60 production function studies, charting the rise in test scores against each $500 spent on class size, teachers' salaries, and teacher experience and teacher education. Investing in more education for teachers and hiring teachers with more experience both pay off in greater student achievement gains.[6]

The implications that can be drawn from the data in the above three figures is that enhancing teacher quality can be a pivotal, make-or-break reform for anyone trying to improve student achievement. Yet much of the action across the nation in the 1990s was focused not on teacher quality but on accountability: setting explicit standards, administering rigorous tests, and delivering rewards and sanctions. The results of education reform in four states only add more fuel to the proposition that teacher quality is the key. North Carolina and Connecticut, where reform focused on improving pre-service teacher education, licensing, beginning teacher mentoring and ongoing professional development, posted

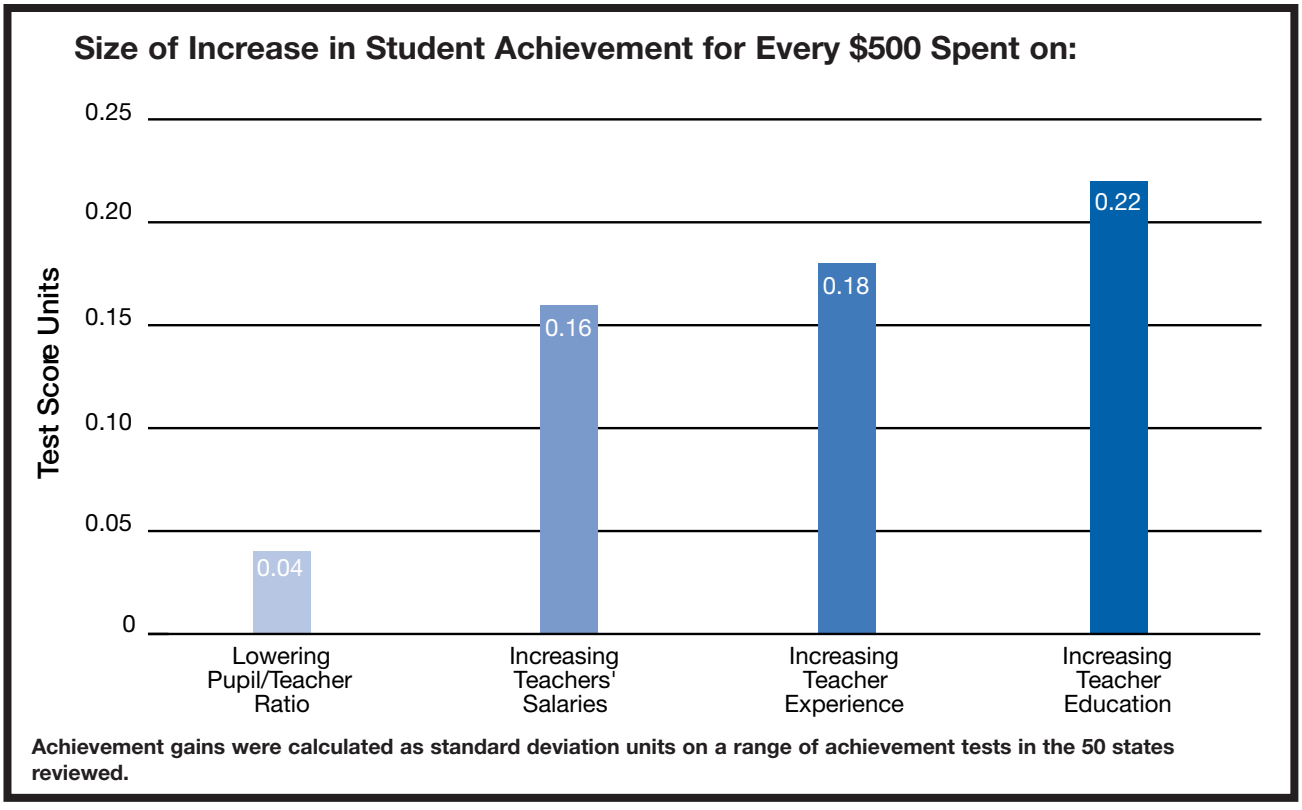


Figure 3. Effects of Educational Investments on Student Scores
Source: Rob Greenwald, Larry V. Hedges, & Richard D. Haine (1995). The Effect of School Resources on Student Achievement. Review of Educational Research 55(3), pp. 361-396.

some of the largest gains of any states on national reading and math tests. South Carolina and Georgia, which emphasized student testing as the engine for education reform, had flat results.[7]

This research-supported case for teacher quality is apparent in public attitudes, according to a 1998 national survey that looked closely at California. Conducted by Recruiting New Teachers, Inc. on behalf of the Center for the Future of Teaching and Learning, the poll asked Californians what needs to be done to improve schools, what role teachers should and could play, and which reform efforts are most likely to be productive. Over and over again, Californians gave answers indicating that they understand how important teacher quality is. Following are some key findings as reported in *The Essential Profession:*[8]

- While keeping schools safe from violence was rated by 92 percent of Californians as the most important measure for increasing student achievement, ensuring that there is a well-qualified teacher in every classroom was not far behind at 89 percent. Issues such as reforming the curriculum, imposing strict discipline, reducing class size, and requiring school uniforms all scored far lower.
- When Californians were asked to pick between requiring achievement tests, establishing a system of academic standards, and improving the quality of teachers, a plurality (47 percent) chose the quality of teaching as the most influential factor in student learning.
- Californians felt that the most important qualifications for teachers were being well-trained and knowledgeable about how to teach effectively (91 percent), thoroughly educated in the subjects he/she teaches (88 percent), knowledgeable about how people learn (88 percent), and able to establish good relationships with children and adolescents (88 percent).
- When asked about allowing parents to use public school funds for private education, Californians strongly rejected vouchers in favor of doing whatever it takes to get a fully qualified teacher in every classroom (84 to 14 percent). Similarly, they preferred getting fully qualified teachers to allowing parents to hire an outside organization to run public schools (83 to 14 percent).

In summing up the results, the polltakers wrote:

> The California results provide an unusually in-depth portrait of public attitudes about teaching, one that reveals clear-cut appreciation of the difference that quality teaching makes to student outcomes and the state's future. Despite myriad challenges facing education today, recognition of the importance of quality teaching cuts across all groups and socio-economic strata statewide. Once the issue of school safety is addressed, Californians conclude that qualified teachers are the heart of school reform and are willing to support a far bolder agenda to ensure a qualified teacher in every classroom.[9]

The report on the poll ends with a call to policymakers to "mark well" the avid interest of Californians in high-quality teaching. And in many ways, new initiatives are demonstrating that policy makers are already heeding the message.

Strengthening Teaching: The Emphasis Is on Evolution, Not Revolution

In the past few years, California has instituted several initiatives aimed at improving the capacity and effectiveness of the pipeline that turns college graduates into credentialed, high-quality teachers. These initiatives, considered in tandem, have the ability to directly affect the overall quality of the current workforce. Additionally, new accountability reforms call for improvements in the academic achievement of California's diverse student population; both new and veteran teachers will need support and assistance if they are to help students meet higher academic standards.

The pipeline into teaching begins with recruitment, followed by the preparation of teacher candidates through either a traditional or alternative certification program, and then extending to the support programs for beginning teachers. In each area, California is making strides:

- **Recruitment.** The state created the California Center for Teaching Careers (CalTeach) as a one-stop information and referral recruitment center for people interested in teaching careers. CalTeach works on drawing people into teaching through advertisements, newsletters, and an interactive web site. CalTeach also promotes creative approaches to teacher preparation by sharing information about the development of promising programs throughout the state. The state has funded a series of television spots that encourage young people, people from diverse backgrounds, and people looking for a career change to consider teaching. In addition, the state is forming reciprocity agreements with other states so that qualified teacher from other states can teach in California without having to attain further credentialing or navigate a bureaucratic maze.
- **Preparation.** The California State University system has been given the mandate and resources to increase its capacity to produce teachers. In addition, teacher preparation programs are trying to become more flexible so that they can better draw in reentry and career-changing candidates. Alternative certification routes are multiplying in number and expanding in capacity. Some school districts now have innovative programs to "grow" their own teachers, while institutions of higher learning are forging partnerships with each other and with districts to create new teacher education options. Regardless of just what paths teachers take into teaching, the Commission on Teacher Credentialing (CTC) is taking steps to ensure that all paths are aligned with the state-adopted content standards for students and the instructional standards for teachers. The state is also underwriting the cost of teacher education to a greater degree, significantly increasing funding for a program—Assumption Program of Loans for Education (APLE)—that provides college student loan forgiveness when newly certified teachers enter and remain in the profession.
- **Induction.** National studies have demonstrated how valuable it is for beginning teachers to be guided by mentors and supported intensively during the first few years of teaching. The payoff comes not only in higher quality teaching but also in a higher rate of teachers remaining in the profession.

California has proven the value of this approach with a long-running project, the Beginning Teacher Support and Assessment (BTSA) program. The recent focus on teacher quality has prompted policymakers to endorse and fund the rapid expansion of this program, theoretically making it available to all new teachers. Studies by the Center of the program's implementation at the local school district level indicate that, while the program is growing, the state has a long way to go before every new teacher is guaranteed a consistently high-quality induction to the profession.

Other state policies are clearly designed to improve the quality of teaching in California's classrooms. Perhaps the most visible policy has been the class-size reduction program. Implemented hurriedly in 1996-97, this program has cut class sizes to 20 or fewer students in the vast majority of the state's K-3 classrooms. While dramatic improvement across the board in student performance is yet to materialize, parent satisfaction with instruction has significantly improved with the reduction of class size, and lower-grade teachers have enthusiastically embraced the reform. (Nevertheless, class-size reduction raises significant issues, which are discussed below.)

The state has also begun to use incentives and rewards to improve the quality of teaching and shape the expertise of the available workforce. Programs in this category include a $10,000 stipend for completing National Board certification; special programs to pay for retraining teachers in math and science; and funding to allow school districts to increase beginning salaries. Some education system observers also see the recently improved funding for modernizing school facilities and increasing security at schools as measures that can increase the quality of teaching, as a better work environment will draw a broader range of teacher candidates.

Finally, California has taken major steps toward defining grade-by-grade academic content standards and implementing rigorous assessment tools. Both set the context for improved teaching by ensuring that desirable outcomes are clearly articulated and that learning is a continuous and cumulative grade-to-grade process.

Understanding that teacher quality is the key to improving student achievement is only part of the battle, however. In the face of limited supply and growing demand, ensuring that there is a quality teacher in every classroom will be an arduous task.

Supply and Demand: Further Disadvantaging the Disadvantaged

The demand for teachers, coupled with what is projected to be an insufficient supply, presents a bleak picture. After studying historical data and projected need on behalf of the Task Force on Teaching and California's Future, SRI International concluded that California has long suffered from a shortage of fully qualified teachers. At the beginning of the 1990s, 12,200, or about 5.5 percent of teachers, did not have a credential and were teaching on emergency permits. Class-size reduction dramatically increased the shortage. By 1998-99, the number of emergency permits had risen to about 28,500—meaning that about one in every ten

California classrooms is staffed by an emergency-permit teacher. [10]

There is little sign that the shortage driving the use of under-qualified teachers will diminish any time soon. Today there are almost 260,000 teachers in California's K-12 classrooms. From 1999 through 2007, California expects to need more than 282,000 new teachers (not counting the need to upgrade to credentialed status the 28,500 teachers now teaching under emergency credentials). This need will be driven by an expanding student population, a possible mass exodus of retiring baby-boomer teachers, and the normal attrition of teachers leaving the field for other careers. Figure 4 illustrates the actual and projected annual rate of teacher hires. The sudden spike in 1996-97 and 1997-98 reflects the surge in teacher demand as class size reduction was implemented.

What the figure shows is that about 25,000 new teachers will be needed each year—and that figure presumes that today's policies remain fairly constant. The numbers could escalate easily if teacher-intensive reform policies are implemented—for instance, an increase in the grade levels covered by class size reduction, or the creation of a special corps of mentor teachers, or the restructuring of teacher workloads to allow more planning time. The numbers could also be affected in the opposite direction if the annual attrition rate is reduced

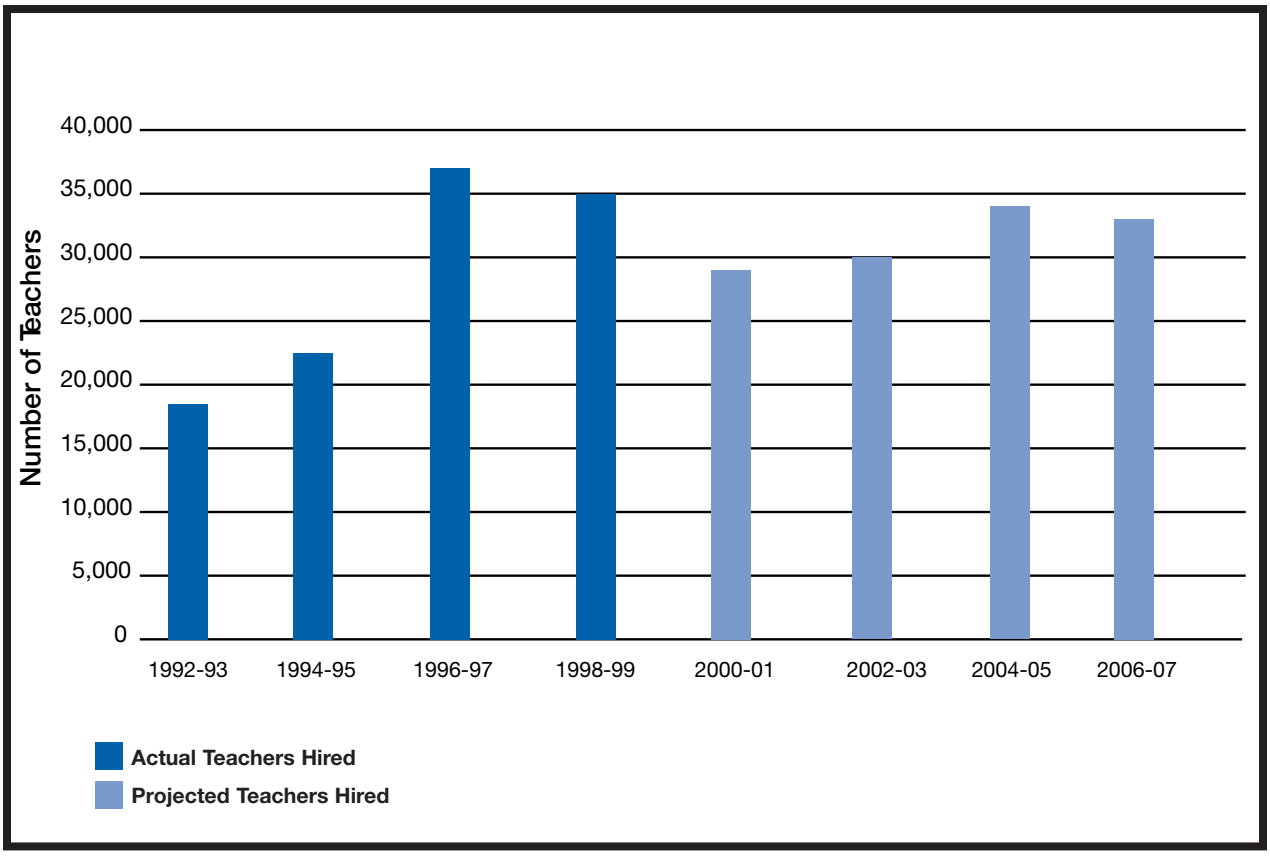


Figure 4. Actual and Projected Teacher Hires 1992-2007

by improving conditions in classrooms, if the annual retirement rate is lower than expected because of teacher willingness to work past the now average retirement age of 60, or if improved hiring practices and beginning teacher support programs encourage more people to remain in the profession.

Even in a best case scenario, California is not well situated to meet the expected need for classroom teachers. During the past five years, almost 17,000 people per year were credentialed, either through training programs or reciprocity agreements with other states. While teacher preparation capacity is expanding and new support programs may improve the teacher retention rate, SRI has concluded that "the most optimistic projection" of 282,000 fully credentialed teachers in the workforce by 2007 will fall short of the projected demand for 297,000.

These statistics make it likely, under current policies, that California will continue to use under-qualified teachers. If this population was spread evenly across the 7,500 schools in the state, the challenge of compensating for a few under-prepared staff at each school might, in most cases, be manageable. But they are far from evenly distributed. Instead, the shortage is uneven across different geographical areas and subject areas. The most at-risk students—low-income, special-needs, English-impaired—are the least likely to have a fully trained, credentialed teacher in their classroom. Statistics show:

- 120 of the state's 1,000 school districts have 20 percent or more under-qualified teachers on their payrolls.
- In 37 percent of urban schools, 20 percent or more of the teachers are under-qualified.
- Schools with the largest populations of poor and minority youngsters consistently have the greatest numbers of under-qualified teachers.

Figure 5 is a sampling of areas around the state showing the high usage of emergency credentials in inner cities and remote rural areas. In specific schools within districts, the numbers of emergency credentials can be even higher. In addition, teacher shortages are evident for bilingual education, special education, math and science, as well as for some secondary school subjects.

Besides the numerical shortfall in the supply of teachers, there is also a mismatch between the ethnicity of teachers and students. While a teacher of any ethnicity can be effective, teachers who share the culture and even language of their students may ease the learning process, as well as serve as important role models. In California, the teaching work force is largely white, as Figure 6 reflects.

The growing demand for well-qualified teachers, combined with the system's current inability to supply them to the right places with the right specialties, is a challenge that threatens to overwhelm the best intentions of policymakers.

Key Policy Issues: Stumbling Blocks Identified by the Task Force

The Task force on Teaching and California's Future has begun to identify key policy issues that need to be addressed for quality teaching to become the widespread norm rather than the occasional occurrence. Among the issues are:

Fragmentation in the teacher development system. Ideally, California would have a career continuum that would engage prospective teachers early, train them in a blended, balanced approach emphasizing both subject content and pedagogical theory, support them in their early years as they transform theory into practice, and then nurture their continuing professional growth through opportunities for collaboration and ongoing learning. The reality of the path to teaching in California is far more rocky. Except in a few bright spots where the various pieces are beginning to work together, the average California teacher has come to his

District	Number of Emergency Permits Issued	Number of Waivers Issued	Percent of Teachers on Emergency Permits and Waivers
Northern California			
Sacramento City	156	33	8%
Elk Grove	48	0	3%
Modoc	0	0	0%
Bay Area			
Oakland	352	88	16%
Palo Alto	18	2	4%
Cabrillo	14	5	9%
Central Valley			
Fresno	172	29	5%
Selma	20	3	8%
Firebaugh-Las Deltas	16	3	16%
Greater Los Angeles Area			
Los Angeles	5,484	614	19%
Ventura	35	7	5%
Snowline	37	10	14%
Greater San Diego Area			
San Diego City	294	11	4%
Vista	45	0	4%
Imperial	21	5	23%
California	***23,687***	***3,810***	***11%***

Figure 5. Comparison of Emergency Permits and Credential Waivers Within a Sample of California Districts, 1996-97
Source: CTC (May 1998). Numbers include special education waivers and permits.

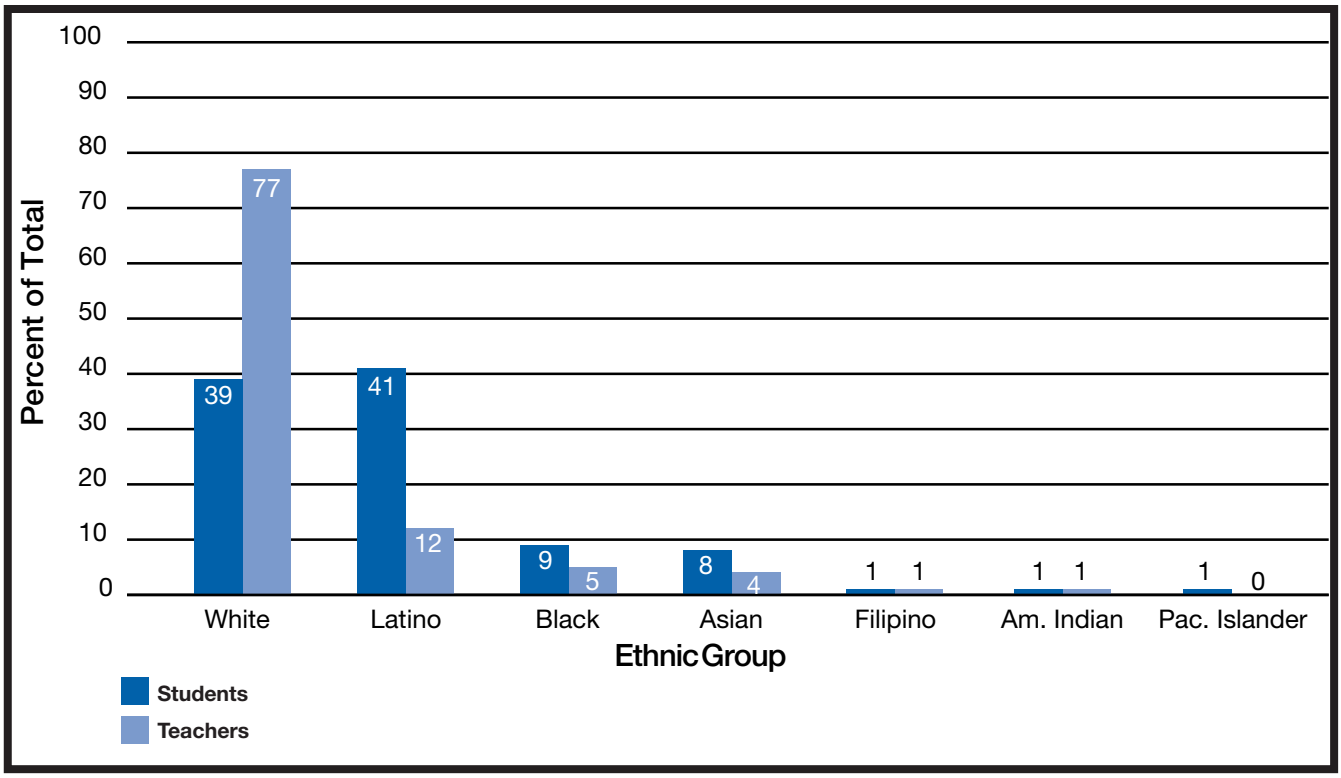


Figure 6. California Student and Teacher Ethnicity, 1997-98

or her job from a "silo" education, with subject content learned separately from teaching theory and with teaching theory largely disconnected from the practical necessities of classroom management. If available, mentoring may be haphazard—or even more of a burden than a help. Professional development is often an isolated, day-long lecture on a topic that may or may not relate to what is happening in the teacher's classroom. School scheduling leaves little time for collaboration or reflection.

This fragmentation of teacher development has consequences that reach beyond the simple but compelling issue of effective teaching in the classroom. Without a clear and attractive career path, many bright and talented people opt for other professions. Without an instilled sense of teaching as a profession rather than as a job, it is difficult to inspire the continued growth and self-reflection that drives high-quality teaching. And without a holistic system that produces consistent results, sustaining public and policymaker support is problematic.

Innovative programs that tackle parts of the teaching career continuum are taking root around the state, and the progress they are charting should not be overlooked. However, a key challenge is to bring the many pieces together in a cohesive whole that will bridge the different components of a teacher's career.

Continuing teacher shortages. The state must continue to crank up the volume of teachers delivered into the system without losing the focus on the training and preparation necessary for quality teaching. The cumulative effect of policies designed in good faith—such as class

size reduction—has been to continue and exacerbate a long-term teacher shortage in California.

The response to the growing shortfall has been to issue more emergency permits than ever before and to rush people through alternative programs that emphasize learning on the job. This accomplishes filling the void at the front of the classroom but has major negative consequences. First, student achievement is lower when students are taught by an underprepared teacher—or one who is overloaded with working at a full-time job while carrying an academic course load to complete the teacher credential process. Second, attrition is high. Many teachers flee the profession within the first five years, and research suggests there is a strong link between attrition and poor preparation and inadequate on-the-job support.

It should be noted that a person with an emergency permit is not by definition a "bad" teacher, just a person struggling with the complex task of teaching demanding subjects to students without training or support. The chances for high-quality teaching are enhanced when people are properly trained and supported. While insufficient numbers of such people is a compelling reason to look at other alternatives, one national teacher expert argues that many of the emergency hires and shortages occur for other reasons, especially poor local hiring practices.[11]

Another problem that has emerged as shortages have deepened is the poaching of qualified staff by neighboring districts. Often districts siphon teachers away from other districts with signing bonuses, higher salary scales, more attractive work environments and other factors. For instance, in largely rural Imperial County, the relatively affluent El Centro district with eleven schools had almost no under-qualified teachers in 1997-98 (three percent of the workforce). But many of the far smaller and less attractive school districts in the surrounding areas had rates running from 20 to 38 percent. Rather than hiring emergency-credentialed teachers, El Centro has established incentives that attract experienced teachers from smaller districts. This serves El Centro's students well, but is less helpful for the students in surrounding areas.[12]

It is impossible to tell hard-pressed inner city districts today that they must avoid hiring unprepared teachers since they are duty-bound to staff their classrooms. However, as the capacity to produce credentialed teachers expands and the supply of high-quality candidates increases, it is critical to set a standard of making the emergency-credentialed teacher the rare exception rather than the frequent solution.

Mismatch of teacher expertise with student need. National research indicates that in any time and place, the least effective teachers are delegated to teach the children most at risk and with the highest level of need for expert teaching. But the shortages in California, exploding under the pressure of class size reduction and exacerbated by years of deteriorating school settings, are particularly acute in the crowded, low-income, and culturally diverse inner city schools. As one researcher noted after on-site visits, even salaries of $100,000 a year couldn't induce people to work in such environments with so many challenges and so little support.

California is far from the only state in which less-effective teachers tend to end up in schools with the highest concentrations of poor and

minority students. Figure 7 is a national tabulation of data about the percentage of classes taught by teachers lacking a major in the field they are teaching, a key indicator of teaching effectiveness. As the figure illustrates, 25 percent of the classes in high-poverty schools and 22 percent of the classes in high-minority schools are taught by such teachers, far higher than the percentages for low-poverty (15 percent) and low-minority schools (16 percent).[13]

Other studies have shown that nationwide minority students are half as likely to get highly effective teachers and twice as likely to get low-rated teachers. In Texas, African American and Latino children are far more likely than white children to be taught by teachers who score poorly on the Texas licensing exam; in states such as Virginia, Pennsylvania, and Oklahoma teachers without a degree in their subject area are more likely to teach in high-poverty or high-minority schools.

But in California, the problem is particularly acute. Researchers evaluating the BTSA program found that 75 percent of new teachers in the Los Angeles Unified School District–the largest school district in the state with almost 700,000 children–are not credentialed. By far, most of them end up teaching in highly demanding classes where students speak a variety of languages, come from impoverished backgrounds that impair their school readiness, and live transient lives that take them from school to school with little continuity in academic exposure. These are students who need the most talented, experienced teachers. But these teachers instead gravitate to more pleasant,

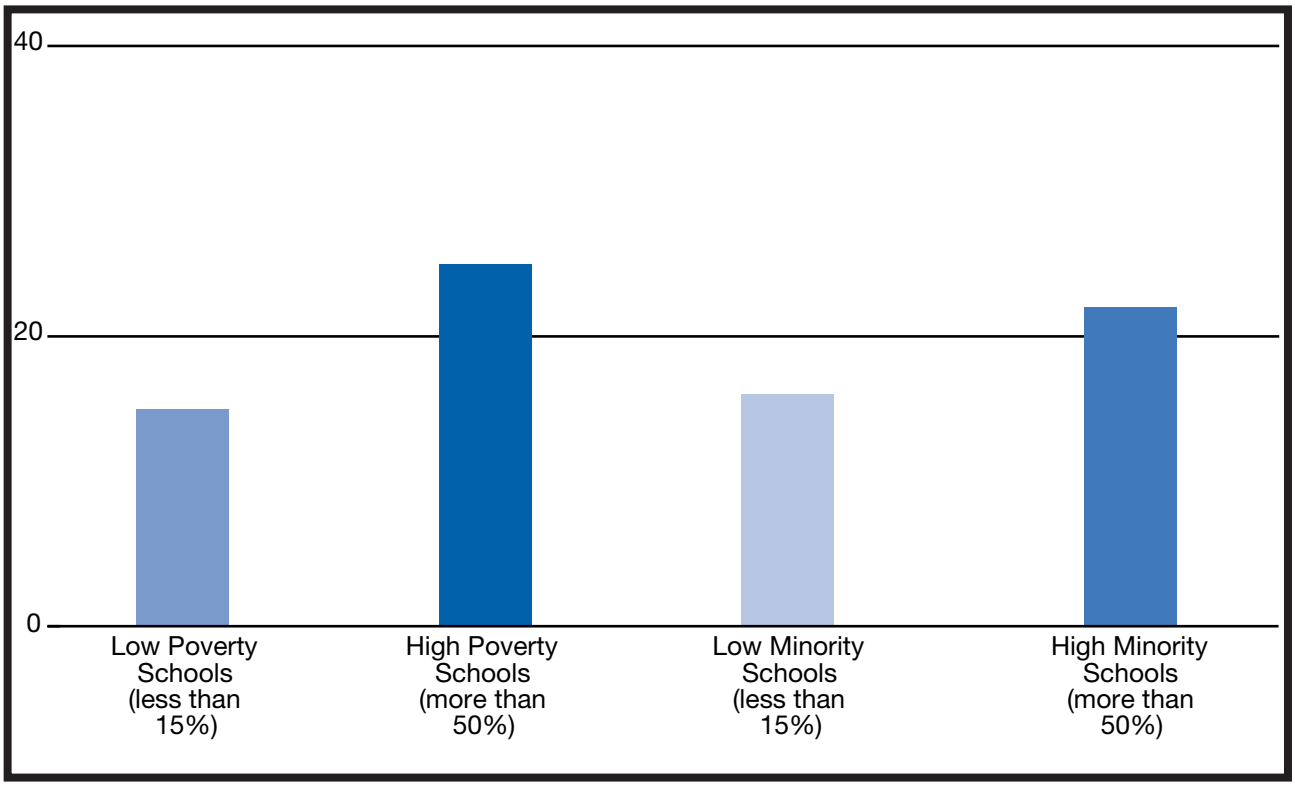


Figure 7. Percentage of Classes Taught by Teachers Lacking a Major in a Field, 1993-94
Source: Richard Ingersoll, University of Georgia, Unpublished, 1998.

affluent settings where children are often more motivated and better supported at home.

The bell cannot be unrung; class-size reduction is a popular reform with both parents and participating teachers. But for many of the state's large population of at-risk children, this reform has had a devastating effect on teacher quality. Truly effective reform of the state's education system will not be accomplished until equity of access to quality teaching is achieved across all income levels and ethnicities.

Uneven implementation of teacher support. There is a need for even, high-quality implementation of new teacher support programs. One of the most promising programs is BTSA, which involves giving first and second year teachers intensive assistance through mentoring and collaborative opportunities with veteran teachers. The payoff comes in improved teacher effectiveness and higher retention in teaching careers. Policymakers in California have recognized the program's effectiveness by providing funds to scale up the program to cover all beginning teachers in the state.

While no comprehensive studies of full statewide implementation have yet been conducted, an assessment of BTSA in eight school districts in 1999 on behalf of the task force is raising concern. From these case studies, it is clear that individual school and district implementation of the program is highly uneven. Many teachers have little or no contact with mentors, the supposed heart of the BTSA program. Several key problems are emerging:

- The short supply of teachers has a cascading effect, especially in schools with 20 percent or more under-prepared staff. In some poor urban and rural schools, there are so few veteran teachers and so many uncredentialed or new teachers that there are simply too few mentors. This may mean that a teacher's mentor is at a far-removed campus (if a mentor is assigned at all), often posing a barrier to a close working relationship.
- New teachers who are given paperwork and assignments to complete as part of BTSA but aren't given the supportive network BTSA is supposed to provide often view the program as an additional burden rather than a helpful process.
- Mentors who are not given adequate release time from their own classes, or who feel they cannot take time away from their obligation to their own students, often feel too harried to give beginning teachers adequate support. The potential for mentor burnout is a concern on the part of those watching the program's development.

While districts need flexibility to mold the BTSA program to local conditions, there also needs to be careful evaluation of BTSA implementation to ensure that the program is consistently and thoroughly implemented. The state and local school districts will need to focus on investing in a workable infrastructure that can result in quality mentoring for all beginning teachers.

Lack of focus on current teachers. In the rush to identify, implement and perfect a model teacher preparation program for beginning teachers, it's easy to overlook the needs of California's veteran teachers. But a large majority of today's 250,000 teachers will still be in the classroom for many tomorrows. It is critical to give them the opportunity and the incentive to upgrade their skills so that they can better

meet the challenge of teaching California's diverse students. The task force's recent teacher survey shows that experienced teachers are generally dissatisfied with the quality of their professional development activities.

One notable exception to the state's focus on new teachers is the creation of a $10,000 reward for those gaining National Board certification. Board certification is certainly one incentive that may prove effective as more teachers become aware of the opportunity. But far more needs to be done. Writing about professional development in a special paper for the task force, teacher quality expert Linda Darling-Hammond remarked:

> *Teachers learn well just as students do–by studying, doing, and reflecting; by collaborating with other teachers; by looking closely at students and their work; and by sharing what they see. Good settings for teacher learning provide plentiful opportunities for research and inquiry, for trying and testing, for talking about and evaluating the results of learning and teaching….Developing the type of necessary knowledge and skill requires that most teachers move far beyond what they themselves experienced as students, and thus that they learn in ways that are more powerful than simply reading and talking about new pedagogical ideas. Learning to practice in substantially different ways than one has oneself experienced can occur neither through theoretical imaginings alone, nor through unguided experience alone. It requires a much tighter coupling of the two.*

Unfortunately, much of professional development today comes in the form of one-day lectures from an outside consultant, with no opportunity for teachers to interact and little prospect for follow-up and support once the teacher returns to the classroom and finds that theory is not fitting comfortably with practice. Instead of this staccato approach, a common perception of teaching as a lifelong learning profession needs to be developed, spread and supported, with frequent opportunities for collaboration, discussion and planning built into the teacher's daily routine.

A lack of equity in teacher preparation opportunities. As pressure increases for a greater supply of teachers, the private sector is stepping up its efforts to offer flexible teacher preparation options—especially for mid-career teacher candidates who may be working at full-time jobs already. While these options provide a much-needed increase in alternative opportunities for people to become teachers, they tend to be more expensive than public-sector options. Many of the people who would consider teaching as a career choice cannot afford to quit their present jobs and pursue the full-time teaching preparation schedule most frequently found in public universities. But they also may not be able to afford the options offered by the private sector. A two-track solution is necessary: public institutions must become more flexible regarding their course offerings, while the state should give financial support to teacher candidates wanting to attend private sector programs.

A failure to recognize and rely on teacher expertise. The cumulative effect of multiple reforms on the classroom teacher is often overlooked. Such reforms as class size reduction, lengthening the school year (at the expense of staff development days), and implementing standardized tests (before content standards are in place) can have unintended

consequences when they are layered one on top of another. Often such reforms are scarcely enacted before a new wave of reforms arrives.

A critical voice in any reform effort, whether incremental or holistic, should be the classroom teacher's. They are front-line experts on what works, what is unduly burdensome, and on what challenges yet need to be met.

Next Steps: Addressing the Issues

As its report goes to print, the Task Force on Teaching and California's Future is setting priorities and getting ready to issue recommendations to improve the teacher preparation and development system. Those recommendations, into which teachers have had substantial input, represent a comprehensive, balanced view of the teacher development system. The recommendations will be designed to help teachers and other educators meet the need of California's diverse student population.

While they wait for the task force's specific recommendations, policymakers should consider the following principles:

- **Be cautious about proposing new reforms.** By almost anyone's count, schools have been subjected to dozens of major reforms in the past few years. When reforms come so rapidly, there is little opportunity to assess their effectiveness. There is also little time to correct the mistakes that occur with even the most well thought out reforms. Teachers now need time to make the new reforms work—not a bundle of new initiatives.
- **Listen to the voices of experience.** The distrust of the abilities and judgment of today's classroom teachers is counterproductive. Many are very knowledgeable, highly accomplished, and have a wealth of experience that could guide reform efforts. We need to find teachers who are succeeding against the odds and overcoming challenges, such as those recognized for excellence as members of the California Teacher Leadership Forum. And we need to use their input to improve the quality of teacher preparation and professional development.
- **Focus on weaving the disparate pieces of today's teacher development system into a cohesive whole.** The present system does not need any more add-ons or new directions. It needs to be unified and effective from beginning to end. Only policies and programs that support a holistic system should be considered and adopted.
- **Use what we already know about high-quality teaching to inform preservice and in-service programs.** As Linda Darling-Hammond defines it:

  Effective teachers must understand how to present critical ideas in powerful ways, systematically organize a useful learning process, and adapt instruction to the different learning styles and backgrounds of their students. Expert teachers need to be alert diagnosticians and flexible planners who teach in reciprocal relationship to their students' learning progress.
- **Use what we now know about the status of teaching in California to address the serious shortage of teachers, especially in poor urban and rural areas.** There is an immense shortage of qualified teachers that will not be solved in the foreseeable future without significant changes in the teacher preparation process. There is a disparity of

access to quality teachers that affects inner city and rural children adversely.

The steps above speak to the major teacher workforce problems in California's schools today. But there are signs of hope, too: public understanding of the need for quality teachers; a willingness on the part of policymakers to take the necessary steps; and bright pockets of innovations throughout the state. Remaining to be done is the hard work of creating a unified and effective system that will guarantee all children a high-quality teacher. Now, more than ever, California's children need this guarantee.

Notes

1. This poll was conducted by Recruiting New Teachers Inc. in conjunction with the Louis Harris polling organization. On behalf of the Center for the Future of Teaching and Learning, the nationwide poll was "oversampled" in California so that state-specific results could be obtained.

2. Kati Haycock, "Good Teaching Matters…A Lot," *Thinking K-16*, Vol. 3, Issue 2 (1998), 1.

3. Linda Darling-Hammond, *Doing What Matters Most: Investing in Quality Teaching*, prepared for the National Commission on Teaching and America's Future, (November 1997), 9.

4. Haycock 1998, 4.

5. Los Angeles County Office of Education, Teacher Quality and Early Reading Achievement in Los Angeles County Public Schools 1998 (May 1999).

6. Darling-Hammond 1997.

7. Darling-Hammond 1997, 11-14.

8. David Haselkorn, Louis Harris and Elizabeth Fideler, *The Essential Profession* (Recruiting New Teachers Inc., 1998).

9. Haselkorn, 1998, 4.

10. Patrick M. Shields, Viki M. Young, Julie A. Marsh and Camille Esch, The Supply and Demand of Teachers for California's Classrooms, prepared for the Task force on Teaching and California's Future (April 1999).

11. Linda Darling-Hammond, "Doing What Matters Most: Investing in Quality Teaching," a seminar sponsored by the California Education Policy Seminar and the California State University Institute for Education Reform, (May 1998), 16-17.

12. Data developed by SRI International for the Task force on Teaching and California's Future.

13. Haycock, 1998, 7.

Chapter 7

Student Assessment and Student Achievement in the California Public School System

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Introduction

More than 15 years ago, a prominent national commission declared us a nation at educational risk, noting *a rising tide of mediocrity that threatens our very future as a nation …*[1] A decade later, California received its own special wake-up call when results from the 1990 and 1992 National Assessments of Educational Progress' state-by-state comparisons revealed that California students were scoring near the bottom nationally in eighth-grade mathematics and fourth-grade reading. California students surpassed only those in Mississippi, Washington, DC, and the Virgin Islands on the 1992 reading assessment. What of the situation today? How are California's students faring? Are our students making progress toward the rigorous standards that have been established for their performance? Are our schools improving? Are they better preparing our students for future success? As we strive toward excellence, who is being helped most and who the least by California's educational system?

Such seemingly simple, bottom line questions are foremost in the minds of the public and its policy-makers. Yet answers are more complex to formulate, made more so by the history and current status of the state's assessment system, the nature of other available indicators of educational quality, and the imprecision of all assessments. Below, we first provide a context for examining the progress of students and schools by reviewing California's recent testing history and the state's progress in creating a sound, standards-based assessment system. We then review available data about student performance, examining how schools are doing and the factors which most influence assessment results. We close by returning to the goals of accountability and standards by which such systems should be judged.

Where California's Assessment System Is Today and How It Got There

California, as the rest of the nation, is creating statewide assessment systems intended not only to measure student learning, but to leverage its improvement. The system itself is intended as part of the reform: It signals what is important to teach and learn by providing specific learning targets–i.e., the content of the test. The assessment also is intended to provide feedback

on how students are doing and thus enable school leaders to diagnose curriculum strengths and weaknesses. Coupled with sanctions and/or incentives, the assessment is expected to motivate educators, students and their parents to pay attention and act to improve their performance. As measurement experts have aptly put it, WYTIWYG–what you test is what you get, a phenomenon that any number of research studies have confirmed.[2]

How Does California's Current Assessment System Measure Up?

Put simply, California's current system is still evolving toward a standards-based system, and the base requirements are not yet in place. As the result of the rocky and changing story of the state's plans over the last few years, the basic requirement for analyzing students' progress–a consistent measure used over time–is not yet available and the system's alignment with state standards remains problematic.

First, a short history. Beginning in 1993, the California Learning Assessment System (CLAS) was to be the primary measurement of student achievement in the state. CLAS was largely a performance-based assessment system, although it included both multiple choice and open-ended items. CLAS focused on the complex thinking and problem-solving aims of the state's curriculum frameworks in place at the time. CLAS came to an early demise after just two years because of both technical quality and public credibility concerns.

Following CLAS, instead of a common, statewide assessment, the state provided financial incentives to school districts to select and administer assessments that best reflected their local standards. The result was a plethora of different standardized tests[3] being given across the state.

Meanwhile, as the state embarked anew on establishing statewide standards for student performance, the testing plan changed again the next year. Impatient to establish a baseline and hold schools accountable, the state (and particularly then-Governor Wilson) initiated in 1998 the new California Standardized Testing and Reporting (STAR) program. The centerpiece of STAR was and continues to be the Stanford Achievement Test Series, Ninth Edition, Form T (SAT-9) administered in grades 2 through 11. Thus, in contrast to an ideal scenario where a testing system would be selected or developed based on a state's standards, the initial STAR test pre-dated the state's standards. Unlike CLAS, the SAT-9, it should be noted, is a norm-referenced test, designed primarily to show how students or schools perform on basic skills relative to others–others in the state, others in similar schools and districts, others in the national norm group (or average).

California's adoption of the SAT-9 occurred at a time when most other states were making progress in meeting federal expectations for state standards and assessments. The federal plan, originally designed in 1991-92,[4] was given additional impetus by the Improving America School Act,[5] in which Title I, an act to support disadvantaged students, was lodged. Title I made the receipt of funds contingent on the development of standards and assessments that met criteria, including the use of multiple measures, assessments for children with different language backgrounds, and measures of progress.

With California's Board of Education's passing of state standards in December 1998, plans to retrofit the testing system to the standards

began. To provide a comparable measure, the plan featured the continued administration of the same SAT-9 that had been administered in Spring 1998, but in 1999, additional items were included to bring the test into better alignment with the state's standards. Thus was born the SAT-9 augmentation, additional items that the test publisher selected or developed to fill in some of the gaps between the existing SAT-9 and California's content and performance standards. With the augmented items, the SAT-9 would then eventually provide both norm-referenced and standards-referenced scores. The norm-referenced scores would communicate to parents, the public, students, and educators how students were performing relative to other students nationally. The standards-referenced scores would tell those stakeholders if students were meeting state-defined content standards at advanced, proficient, basic, or below-basic levels. As we describe later in this chapter, although a first set of augmented items was administered in spring 1999, there are some questions about their appropriateness. Performance standards have not yet been established for them, so results from the augmentation are not yet directly interpretable.

Additional components of STAR are in the works to bring California's assessment system into still closer alignment with the state standards. The California Assessment of Applied Academic Skills (CAAAS), the so-called "Matrix" test, is to be designed to focus on the disciplinary thinking and problem solving capabilities which are reflected in the standards, but not well assessed by the SAT-9. Since the SAT-9's multiple-choice items alone cannot assess the broad range of important thinking and communication skills, the Matrix test is to include open-ended and performance-assessment tasks, such as asking students to explain their thinking or write an essay. This component will model the types of learning which are expected of students and preclude an exclusive focus on "drill and kill" formats in classroom instruction that often are encouraged by multiple choice test formats. The Matrix test employs a matrix sampling framework where the accuracy and comprehensiveness of the assessment are improved by having some students within a school respond to some assessment tasks while other samples of students respond to different tasks. Given that each open-ended and performance assessment takes substantially more time to administer than a multiple choice item, matrix sampling improves the overall coverage for the school as a whole while minimizing the time each student is required to spend taking an assessment. While it has not been designed to yield a score for each student, it does provide school-level results for judging the quality of a school's curriculum and instruction and students' collective achievement and progress at that school. CAAAS currently is scheduled to go operational in 2001.

A high school exit exam in language arts and mathematics is the most recent addition to the state's standards-based assessment arsenal. Enacted as part of Governor Davis' first 100 days education agenda, the exit exam will be required for high school graduation and is scheduled to go operational in 2004. An English Language Development Test also is under development (see the chapter on English Learners in this publication.).

Academic Performance Index

The components of the STAR program thus are abundant and in fact, there is continuing debate about whether the assessment load is too high and whether all planned components are necessary to achieve the system's goals. Even as the system components are under discussion and development, California already has developed a high stakes school performance index based on them. The Academic Performance Index (API) is being used to rank schools across the state based on their SAT-9 test scores. More will be described about the API in our concluding section.

The Assessment Context: Setting the Course with a System in Transition

As we've noted, the ideal assessment system is developed after a state's content and performance standards are established in order to be in alignment with what students are learning. Since California's assessment system followed a different course, it remains a system in transition.

The Importance of Alignment

The alignment between what is tested and what students are expected to learn is a critical

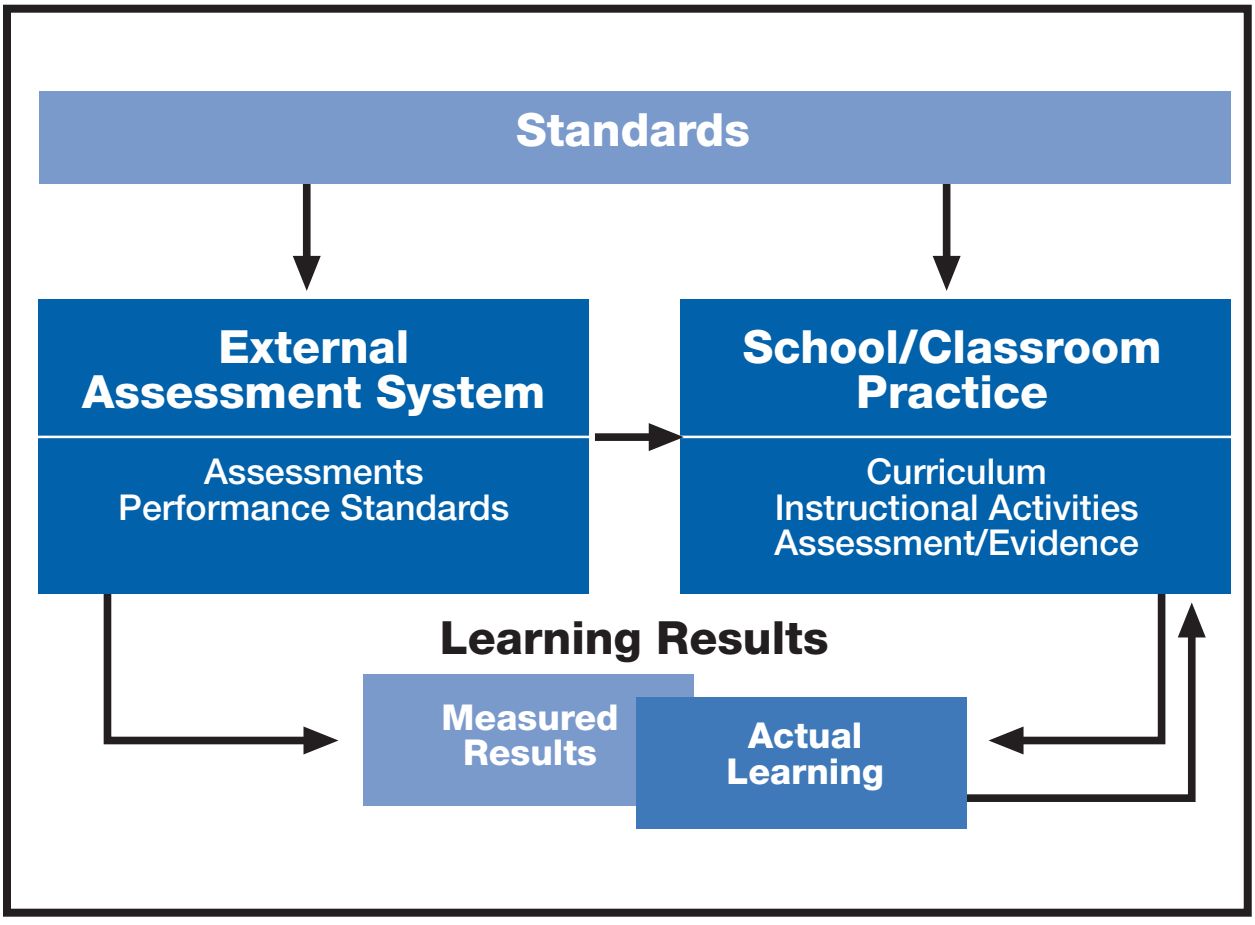

Figure 1. Model of Standards-Based System

criterion for any assessment or accountability system intended to promote the improvement of student learning and is the essence of current standards-based reform. As displayed in Figure 1, the idea is not really to teach to the test per se, but rather that both testing and teaching reflect the standards we hold for student performance. When standards, testing and instruction are in synchrony, the logic of the system works to leverage better performance. When not, then holding schools accountable and encouraging them to use the assessment results may not promote the standards we seek.

Consider, for example, the case where the assessment doesn't well reflect the standards. Under pressure to show improvement, schools and teachers may use test results to modify their curriculum and instruction, but moving toward the test does not mean movement toward the standards. Minimally, the test and the standards are sending conflicting messages, which can cause confusion and dilute the focus of school efforts. Or consider where there is a poor match between what is taught and what is assessed. Here, while the results may tell us about gaps in the curriculum, they tell us little about the quality of instruction and teaching in that school. Even under the best scenario, as Figure 1 portrays, assessment results reflect only a portion of what students have learned and what they know and can do. In other words, the test is a reflection of standards and goals, it is not the goal itself.

Characteristics of Quality, Standards-Based Assessment Systems

- **Alignment.** Does the assessment reflect content and performance standards that have been established for students? Is the assessment content consistent with the best current understanding of the subject matter? Do it reflect the enduring themes and/or priority principles, concepts and topics of the discipline?
- **Instructional sensitivity.** Can the test detect differences in the quality of instruction? Does the test measure learnable and teachable knowledge, rather than simply general factors such as general ability or language background?
- **Technical quality.** To what extent are results reliable and consistent? Comparable over time and setting? Do the results enable accurate generalizations about student learning and achievement relative to standards?
- **Fairness.** Does the assessment enable students, regardless of race, ethnicity, gender or economic status, to show what they know and can do? Have students had the opportunity to learn what's being assessed?
- **Meaningfulness.** Do parents, teachers, students and the public find the assessment worthwhile and credible?
- **Consequences.** To what extent do the assessments model and encourage good teaching practice? Are intended positive consequences achieved? What are the unintended negative consequences?
- **Multiple Measures.** Does the mix of measures optimize alignment, technical quality, fairness, meaningfulness and consequences criteria?

* Adapted from CRESST Criteria for Evaluating Assessment Quality (Linn, Baker and Dunbar, 1991) (National Center for Research on Evaluation, Standards, and Student Testing, Los Angeles, UCLA)

Figure 2. Characteristics of Quality Standards-Based Assessment Systems

Other Criteria for Quality Standards-Based Assessment Systems

How well the results of an assessment system represent student learning is a complex validity issue and one which has driven traditional concerns for technical quality. One asks about the reliability, accuracy and consistency of measurement, at the same time acknowledging that there is error in any measure and that all tests are fallible–some more than others. But even alignment and indices of technical quality provide an inadequate base for evaluating the soundness of any assessment system. History shows that a number of other features of assessments are important to a quality system, the major ones of which are summarized in Figure 2.

Consider the importance of instructional sensitivity. If the assessment does not measure efforts made in the classroom–even if it nominally "matches" standards–it will be a poor device to provide feedback for improvement. Instead, scores will misrepresent the reality of serious educational reform. They may indicate improvement that might happen spontaneously with or without reform. Note also the final characteristic in our list–multiple measures–which is necessary to achieve the other listed criteria. It is unlikely that a single measure can adequately capture our goals for student performance or enable all students to show what they know. Some types of measures are efficient and cost effective for some purposes but have unintended consequences for other purposes. For example, multiple-choice tests can be highly efficient, cost effective, and reliable, but an over-reliance on such testing in the 1980s led to a narrowing of the curriculum to basic skills and an overemphasis on "drill and kill" types of instruction.[6] Different constituencies, furthermore, find different types of information meaningful and useful. For example, basic skills are high among the public's priorities and parents and the public often want to know how their children compare with others–nationally and internationally. Educational reformers and futurists, on the other hand, emphasize the importance of all children achieving high levels of skill in communication, problem solving and ability to learn and change—abilities which may not be well assessed through multiple choice testing.

Assessing Limited English Proficient Students

While state code requires all students in grades 2 through 11—including those who are not fully proficient in English—to take the SAT-9,[7] it also provides that limited English proficient (LEP)[8] students who have been in school less than 12 months also be tested in their primary language. Students who have been in school more than 12 months but are still classified as LEP may also be administered a primary language test. The state has selected the Spanish Assessment of Basic Education, Second Edition, (SABE/2) as the statewide measure to be used for assessing students whose first language is Spanish, which begins this year. Currently, then, different districts are using different measures so it is not possible to know statewide how Spanish-language students are doing based on tests in their primary language.

The assessment of LEP students continues to be highly controversial. On the one hand, testing students in a language they do not understand does not allow them to show what they know and can do in content areas such as math and science, raising questions about the extent to which *fairness* criteria are being met in the state's

system. On the other hand, it is important that LEP students' achievement and progress be monitored in publicly visible ways, and that schools be held accountable for all their students. The *consequences* of not testing and reporting LEP students' performance is that their progress and their needs may be ignored.

Testing in students' primary language at first glance might seem a better and fairer option. However, research shows that primary language testing only helps those students who have been instructed in their native language[9]–a circumstance which current education code prohibits for LEP students who have been in this country for more than a year. Statewide testing of English language proficiency will soon enable the state to at least monitor LEP students' progress in acquiring English, providing another measure that is potentially more sensitive to individual students' achievement and progress. Testing accommodations which attempt to reduce the language load of a test or otherwise compensate for students' reduced language skills (e.g., allowing students more time to take tests) also are currently being researched, but a solution that is equitable and fair for all students has not yet been found. Measurement experts, however, largely agree that test results of LEP students should be separated from those of English proficient students, and that the validity and utility of individual scores for LEP students on English language exams is limited.[10]

Other Indicators of Quality

Beyond the components of STAR, there are other statewide indicators that can be used to judge the quality of student performance.[11] As mentioned above, multiple indicators are important to a balanced and valid view of any educational system. Some of these indicators act as counterbalances to others and are particularly relevant for different sub-populations. For example, the high school drop-out rate is of interest in itself, but also to assure that schools are not achieving higher test scores at the cost of more children leaving the system. Advanced placement exams, which are given to high school students who take college-level courses at their high schools through the College Board,[12] provide an indicator of how schools are serving their highest-ability students. As described further below, both the number of exams taken and the proportion passing are of interest. Similarly, college entrance exams, such as the SAT, provide an indicator of both students' expectations and preparation to attend college.

Other indicators are external to the K-12 system and provide a validity check of its academic quality. The National Assessment of Educational Progress (NAEP) periodically assesses national performance in the major subject areas—reading, mathematics, science, writing, etc. States participating in NAEP's state-by-state program are able to compare their performance to that of other states as well as nationally. College placement tests, which are used to decide whether entering college students have adequate mathematics and writing skills to handle college coursework or need remedial help, provide another external comparison point for judging the quality of the states' pre-collegiate systems.

Alignment and Consistency

The alignment of these various indicators of student performance is an issue under current

discussion. Some believe that college entry tests, such as the SAT, and college placement tests ought to be aligned with the state's standards and with the state's K-12 assessment system. Advocates believe that this would not only provide greater consistency and focus to California schools but would permit greater efficiency in testing. For example, they project scenarios where the state's graduation tests would serve a role in the college selection and placement process.

Consistency and alignment of each of these indicators with state standards aside, one looks for consistency in performance across various indicators to judge the quality of California's academic achievement. Although any individual indicator is flawed, when multiple indicators show consistent direction, we can be more confident of the breadth of our perspective and the validity of our conclusions. We now turn to a consideration of those indicators.

Student Achievement in California Public Schools

A serious understanding of student performance in California requires in-depth knowledge of the wide variety of student achievement measures we've outlined thus far. In the next few pages, we'll describe those instruments, what they are intended to measure or monitor, and how well California schoolchildren are doing on them. We'll review data from both the most recent testing period and over a longer period of time to help the reader understand the status and progress of California performance.

We'll begin with a look at the state's standardized testing system, the program that applies to all students in the public educational system from elementary school through high school. Next we will analyze information regarding California's performance on NAEP. From there, we'll examine the results of a series of secondary school measures, including high school drop-out and graduation rates, advanced placement (AP) test results, course-taking patterns, and college entrance examination performance. To address the longer-term impact of public school, we will also present data on college attendance and preparedness by considering findings on reading remediation tests for college freshmen in the University of California system. Finally, we'll comment on some of the demographic trends for California students over the last decade and venture a summary judgment across this collection of information on what the state of academic achievement in our California public schools is and whether there is evidence it is headed in the right direction.

STAR Results

As we've noted, California began to implement STAR in 1998 with the SAT-9. In the sections below, we'll look at how well California students performed on the norm-referenced SAT-9 in reading, mathematics, language arts, spelling, science, and social studies in the 1997-'98 and 1998-'99 academic years, with some words of caution about the interpretation of the scores. We will follow with analyses of the performances of LEP students and students who are economically disadvantaged, and compare how

the performance gaps between these groups and others vary across different school contexts.

How are California's students doing on the SAT-9?

Before examining how California students are doing overall, it would do us well to review what the results from a norm-referenced test mean. The results tell only generally what students know and can do. The real information they provide is how California students' performance compares with that of a national norming group. Results often are reported in terms of percentile scores, which reflect where students' scores fall relative to the national distribution. For example, if a student scores at the 40th percentile, it means that the student's performance equaled or exceeded 40% of the national norm group. A score at the 50th percentile—which the public often considers "average"—means that the student's performance equaled or exceeded half the national norm group. Thus the nature of percentile scores means that some students will be above and some below the "average" relative to the norming group.

The national norming group is intended to represent students nationally. Ideally, for norms to be interpreted easily, the kinds of students tested in a particular state would be similar to those in the norming group. In the case of California, interpretation of the test results is difficult for a number of reasons. First, while no tested and norming groups are ever exactly alike, California's student population differs substantially from the national norm group in its diversity and its urban concentrations. Plus, unlike other states, California assesses virtually all of its students using an English-language examination, even though approximately a quarter of them are not fully proficient in English. It is not hard to predict that students who do not understand English are likely to fare poorly when compared to a national norm group consisting of only two percent of similarly non-English proficient students.

Thus, when we look on average at the results of all California students, it is not surprising to find that California students score below average (50th percentile) in practically all subject areas and in almost all grade levels compared to the national norm group. On the reading tests for grades 2 through 11, scores ranged from the 32nd to the 44th percentile in 1998, and from the 32nd to the 46th percentile in 1999. Average scores failed to exceed the 50th percentile at any grade level in either year, and performance shows a precipitous drop at the high school level.[13]

Observed scores were somewhat better in mathematics, where scores ranged from the 39th to the 50th percentile (grade 9) in 1998, and from the 44th to the 52nd percentile in 1999. For 1998, only grade 9 showed average scores above the 50th percentile. In 1999, grades 2, 6, and 9 showed average scores above the 50th percentile. In all other grades, average performance for California students was lower than the national average.

The subject areas of language arts and spelling showed similar levels of performance. In language arts, only one grade level (grade 7) exceeded the national average in 1999. None did so in 1998. For spelling, no grade levels surpassed the 50th percentile in either year.

Similarly, none of the three grade levels (grades 9-11) taking the science test demonstrated average performance above the 50th percentile in 1998 or 1999. In social studies, only

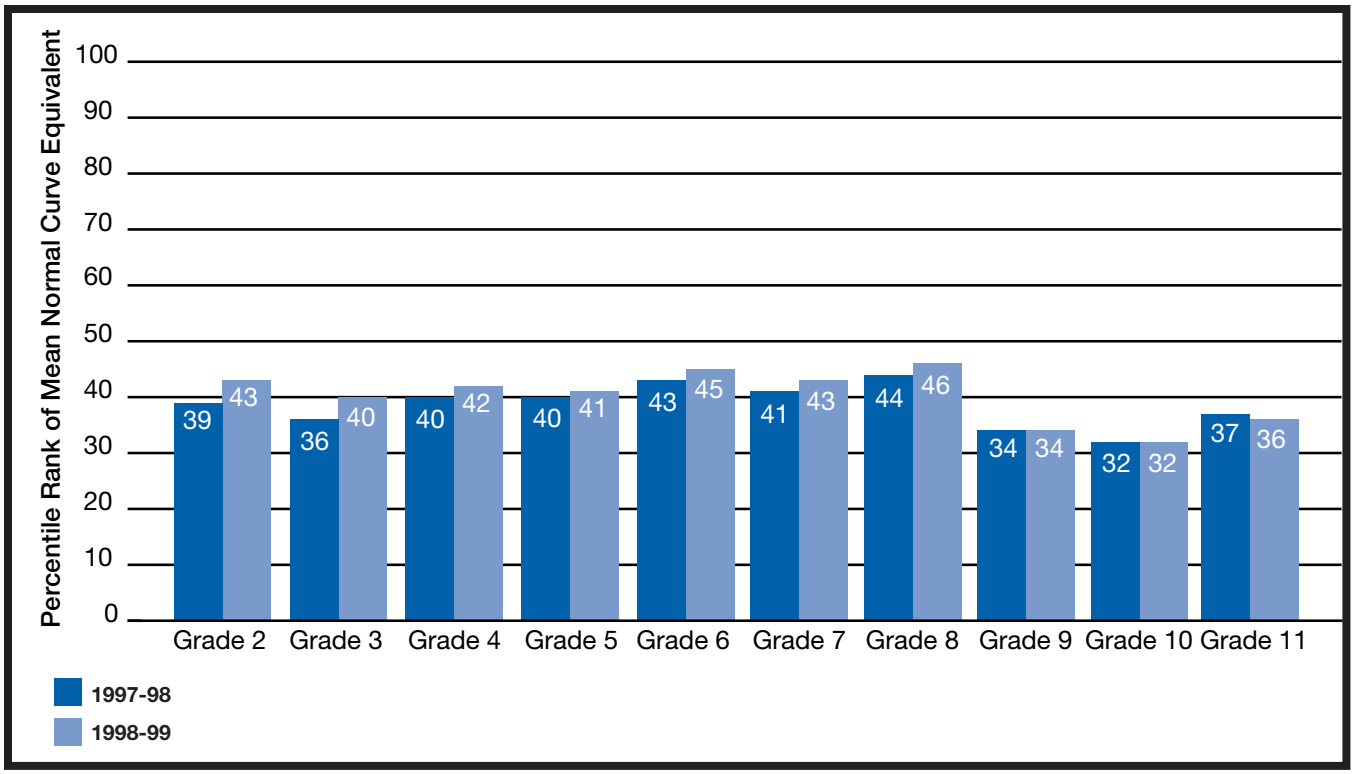

Figure 3. SAT-9 Reading Scores

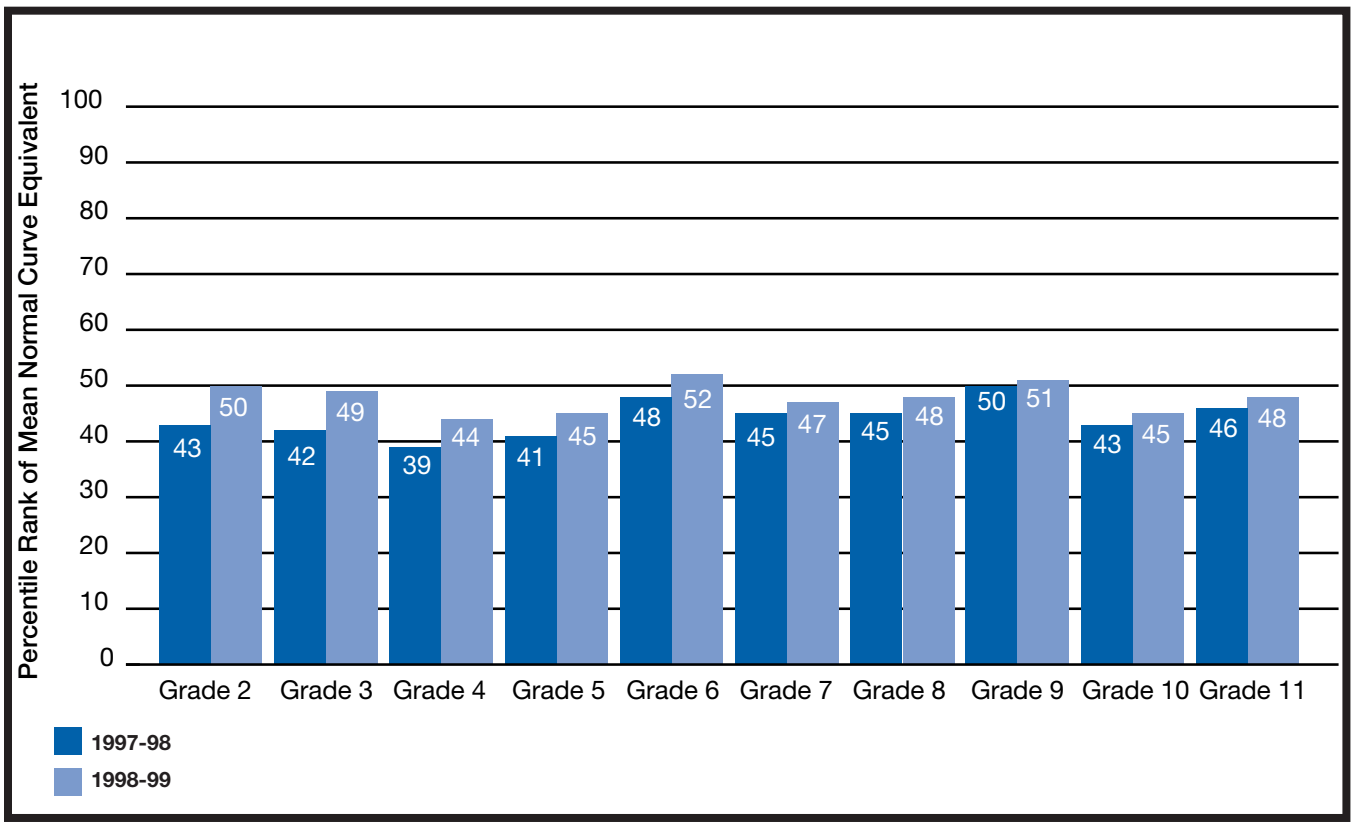

Figure 4. SAT-9 Math Scores

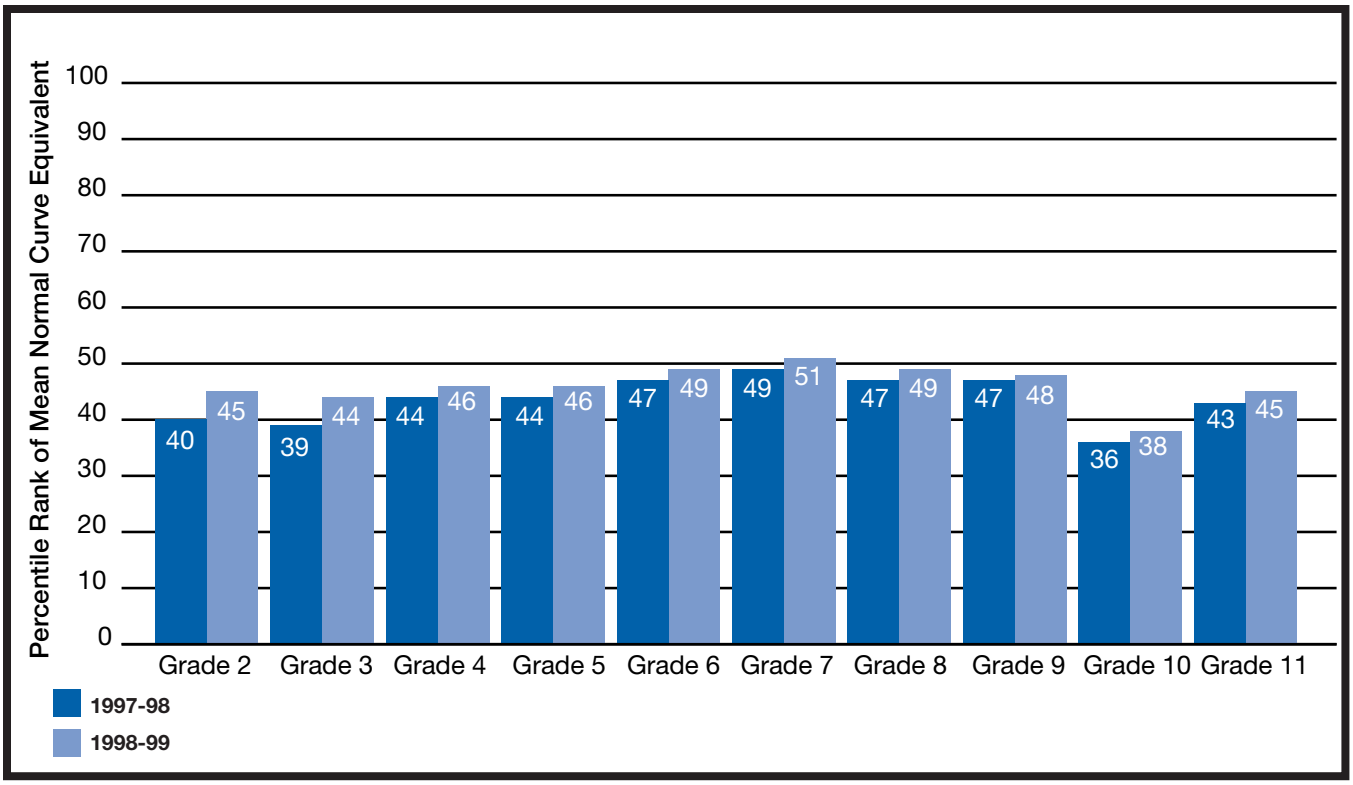

Figure 5. SAT-9 Language Scores

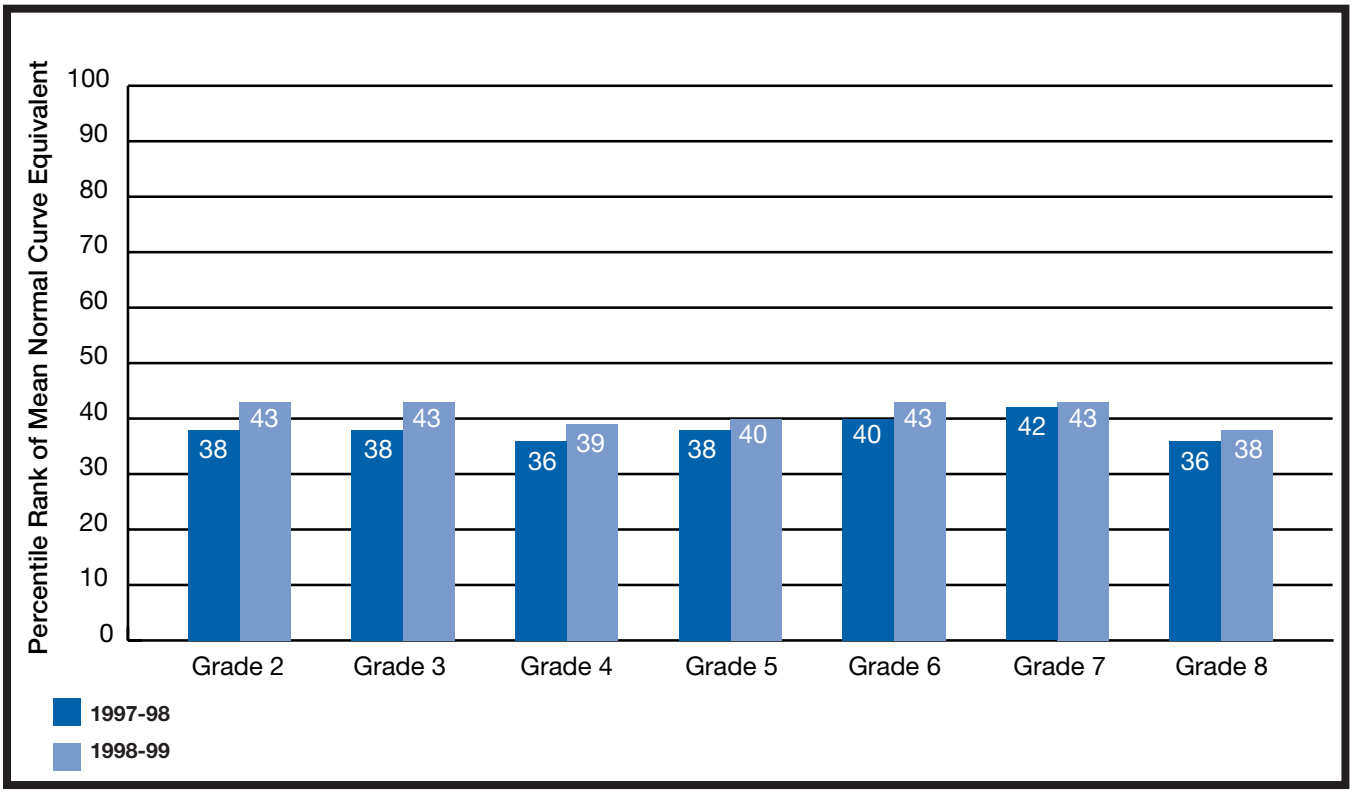

Figure 6. SAT-9 Spelling Scores

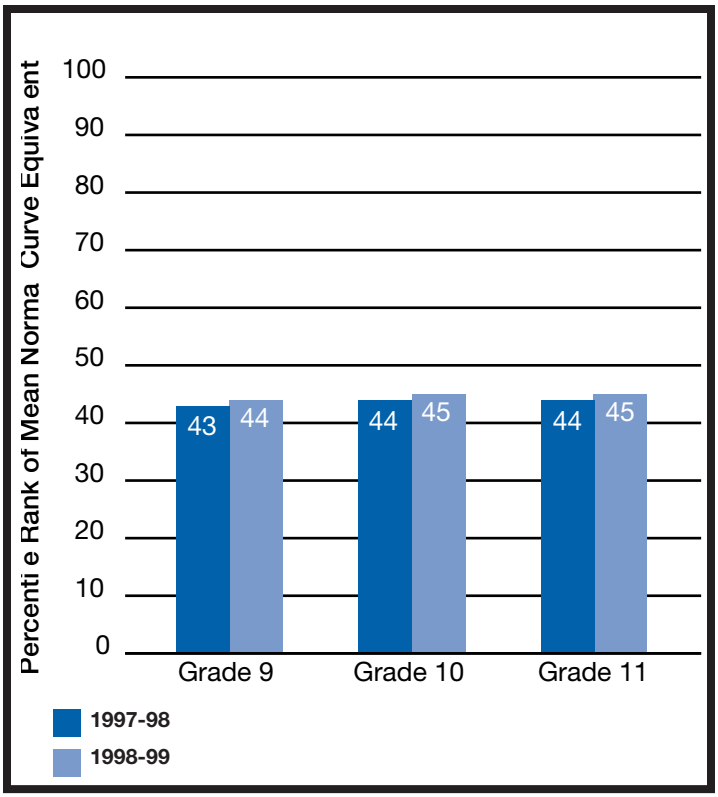

Figure 7. SAT-9 Science Scores

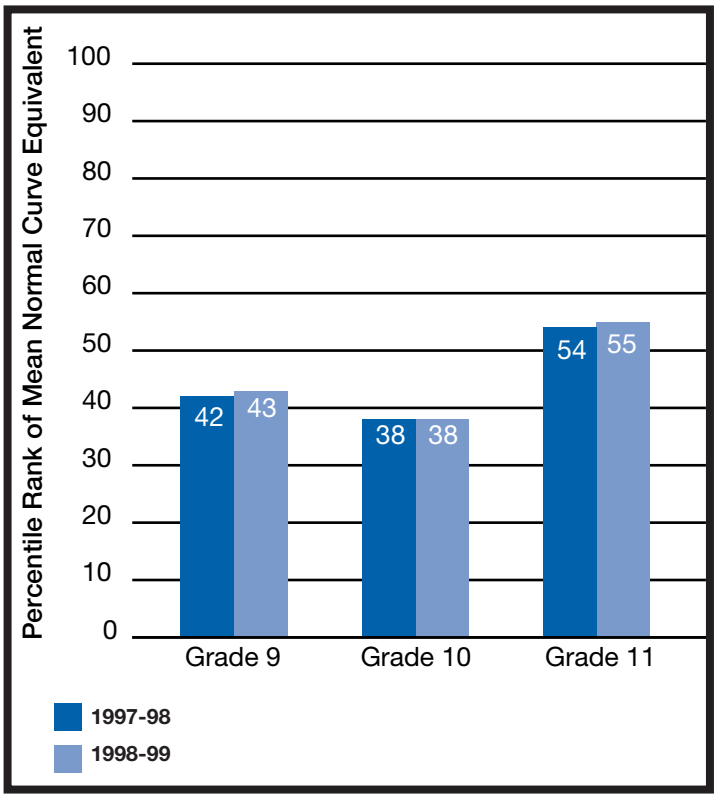

Figure 8. SAT-9 Social Studies Scores

grade 11 showed average performance above the national average, doing so in both 1998 and 1999. Average grade 9 performance in social studies came in at the 42nd and 43rd percentiles in 1998 and 1999, respectively. Average grade 10 performance was lower, reaching only the 38th percentile in both years.

How are California's English-proficient students doing on the SAT-9?

One gets a slightly different picture, however, from looking solely at the results of California students who are fully proficient in English, a comparison that somewhat favors California students, since approximately two percent of the national norm group is not proficient. Here, the 1999 results show that California's English-proficient students are generally scoring at or above the national average. Differences between all students and English-only students are most pronounced in reading, as we might expect, at the elementary school level (grades 2-5). Yet student performance is still the best, relatively, in mathematics. And regardless of the comparison group, California students are performing the poorest, relatively, in spelling at the elementary school level and in science and social studies at the high school level.

Are California's schools improving?

Comparisons between scores from the initial year (1998) of STAR and the most recent year (1999) are inevitable. Many claims of "improvement" or "progress" have been made based on such comparisons. However, a word or two of caution should be issued. First, observed test scores[14] are not without error. That is, observed scores—the score students receive when they take a test—do not exactly represent their actual or true capability, due to errors of measurement.

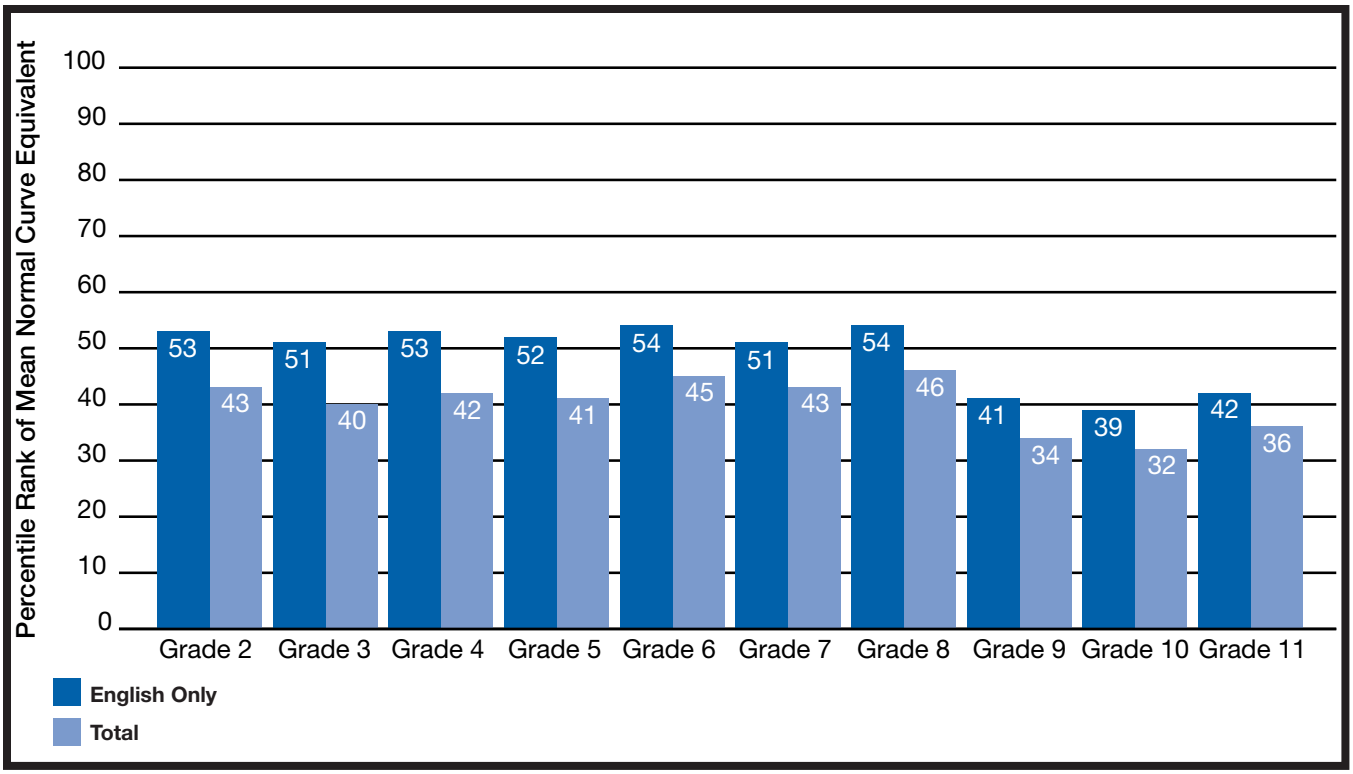

Figure 9. SAT-9 Reading–All Students versus English Proficient Students

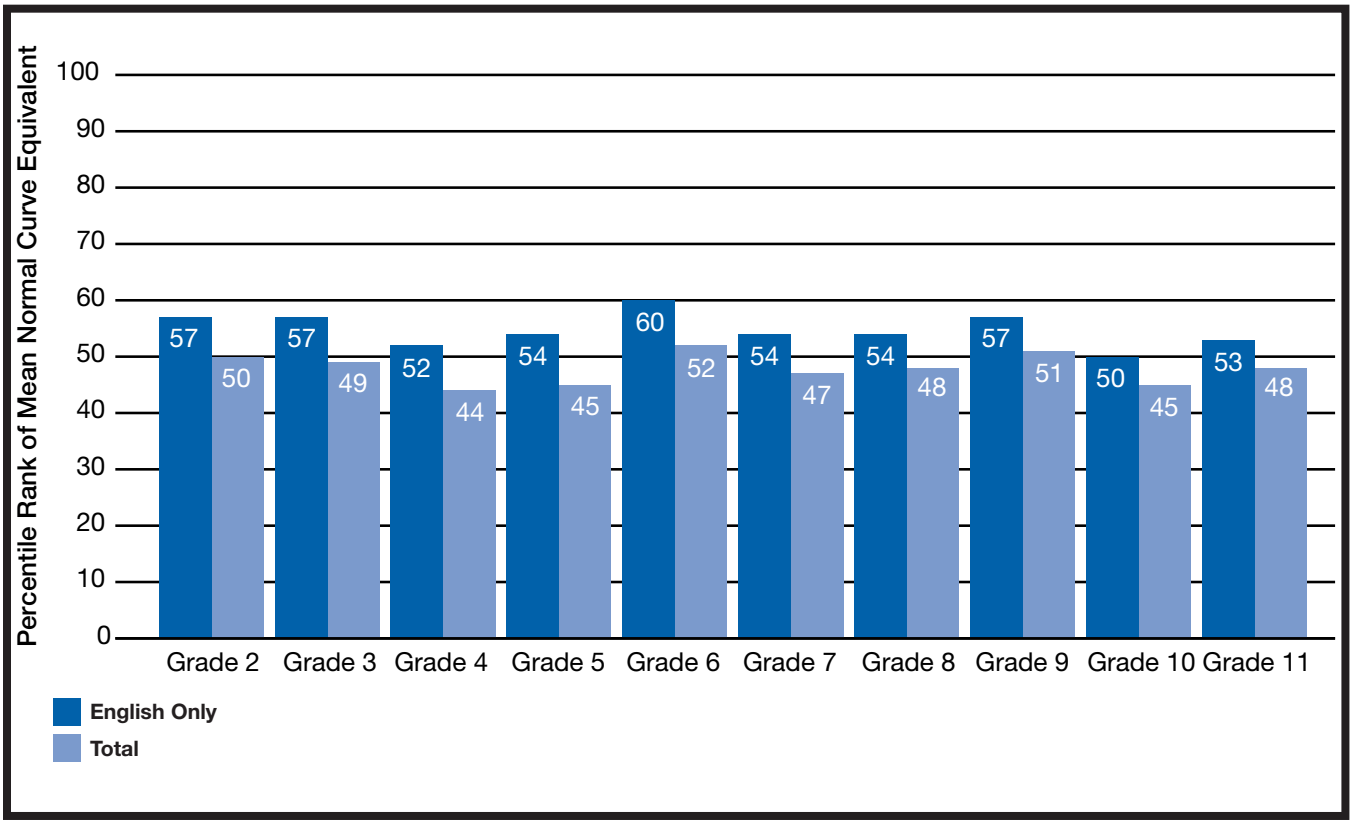

Figure 10. SAT-9 Math–All Students versus English Proficient Students

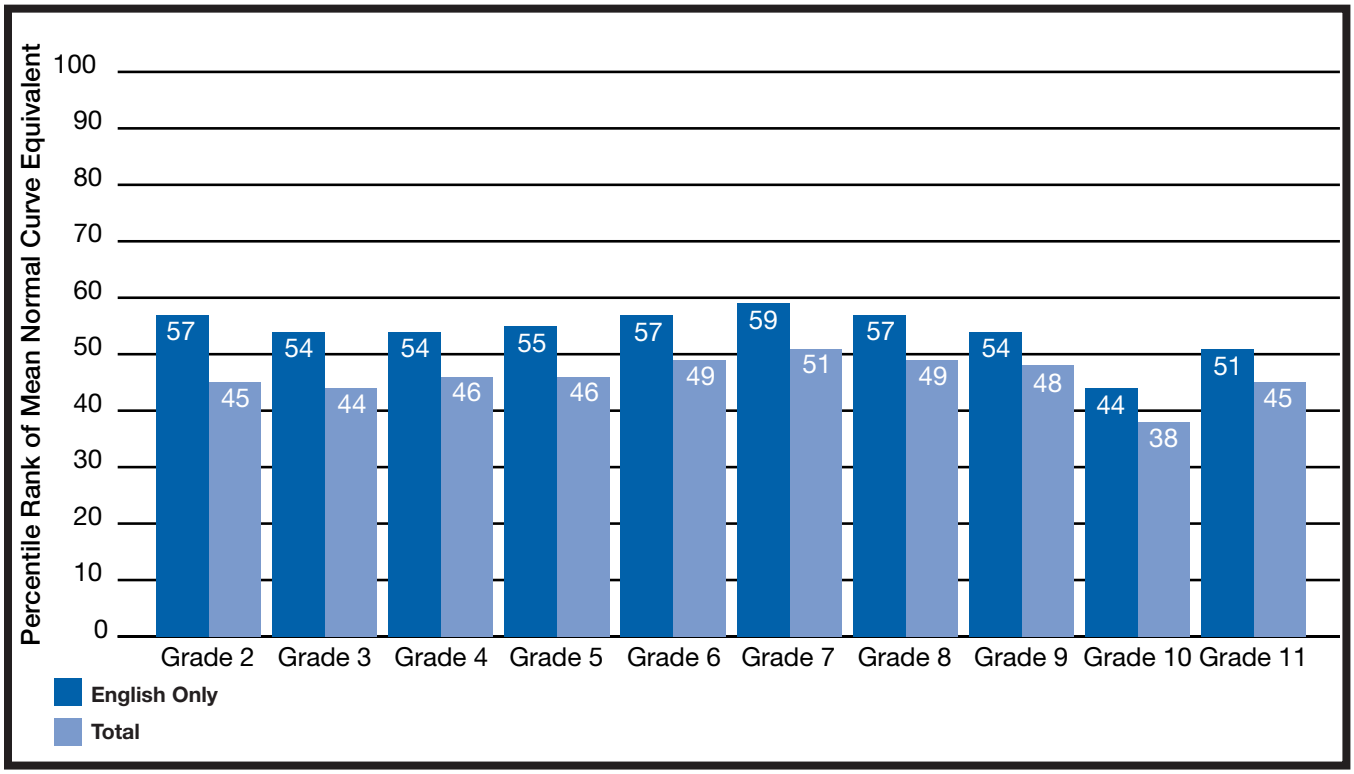

Figure 11. SAT-9 Language–All Students versus English Proficient Students

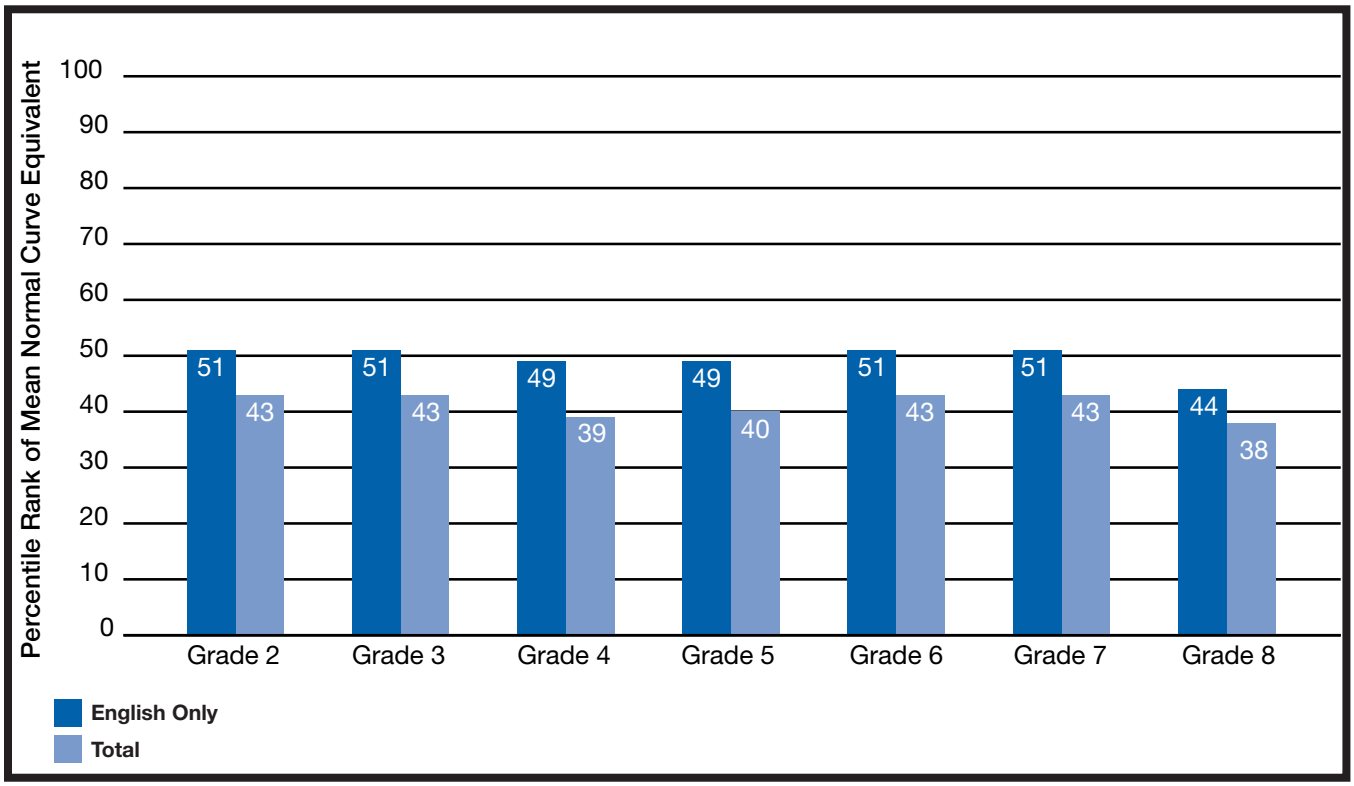

Figure 12. SAT-9 Spelling–All Students versus English Proficient Students

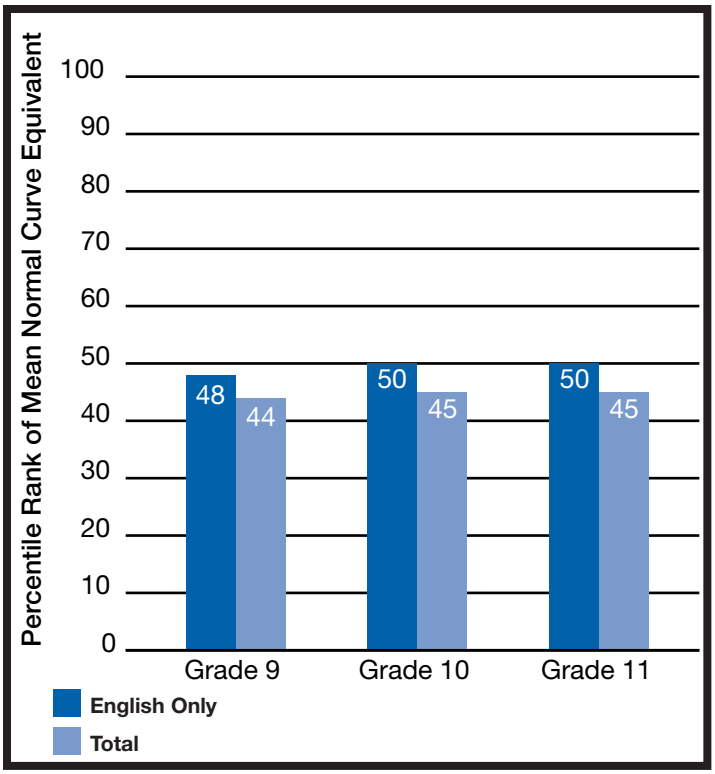

Figure 13. SAT-9 Science–All Students versus English Proficient Students

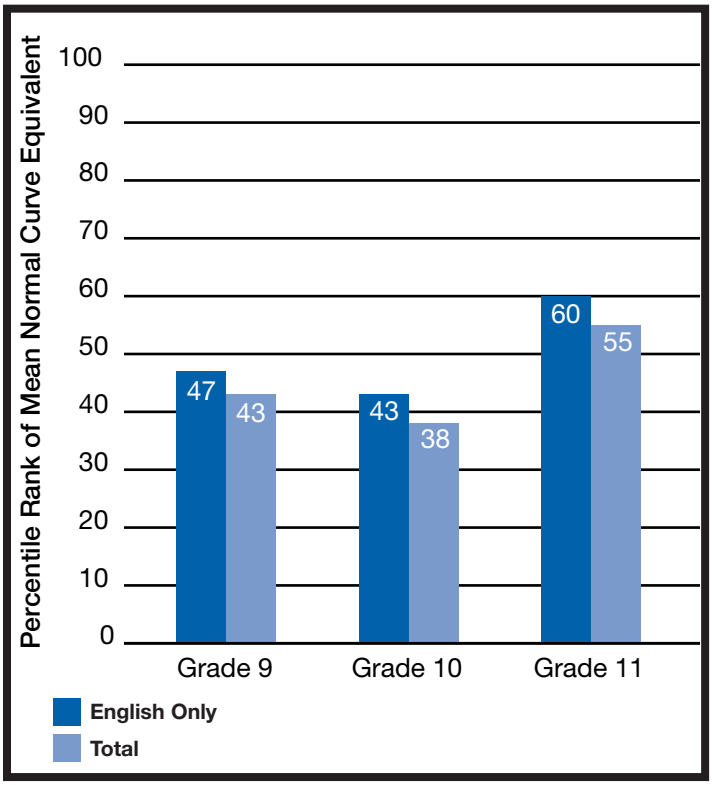

Figure 14. SAT-9 Social Studies–All Students versus English Proficient Students

The magnitude of this error varies, partly as a function of test reliability. One issue in interpreting these norm-referenced test scores as indicators of student or group achievement (or progress), thus, is how accurately the observed scores represent students' true achievement.

Recent work by Stanford professor and CRESST researcher David Rogosa addresses this accuracy issue. In addition to technical reports that may be too complicated for the average citizen, Dr. Rogosa has created an easy-to-read guide titled, "How Accurate are the STAR National Percentile Rank Scores for Individual Students?–An Interpretive Guide."[15] The results of this work will surprise many. Although most of the results are presented in the form of tables of data, the guide does provide a few samples in the form of responses to hypothetical questions. For example, the guide poses the question, "What are the chances that a ninth-grade math student whose actual capability or true score is at the 50th percentile of the norm group obtains a score more than five percentile points away from the 50th percentile?" The answer–70 percent! That is, there is only a 30 percent chance that the observed score is between the 45th and 55th percentile points.

With respect to interpreting progress, Rogosa's guide also provides calculations for the probabilities of certain increases or decreases for students whose true percentile ranks remain constant from one year to the next. In one example, a ninth grade math student who is actually at the 60th percentile in both years has a greater than 50 percent chance of showing at least a ten percentile point change (up or down) in the second year! To state it differently, for this case it is more likely than not that student whose true score actually remains the same

from one year to the next will result in an observed score difference of more than ten percentile points. Given this level of imprecision in interpreting scores from one year to the next, it is advisable not to make too much of observed score differences, especially minor ones. While it is recognized that these analyses are based upon less precise student level scores and not state aggregates, it is nonetheless worthwhile to consider the issue of accuracy when utilizing standardized test scores to render important judgments.

Beyond the precision issues, there are also questions of the extent to which scores from one year to the next may be inflated by test preparation practices. That is, research suggests that under pressure to show improvement in test scores, teachers bring their curriculum more and more in line with just what's on the test and not the broader domain the test is intended to measure. They also are likely to spend substantial time on test preparation. Thus, the extent to which gains reflect real improvement in learning is an open question.[16]

Accuracy considerations aside, another issue to consider in comparing 1998 to 1999 observed scores is how progress is gauged. For assessing school-level progress, does it matter whether comparisons are made between mean-scaled scores or between the percentage of students scoring above a specified score point–two different ways of portraying "average" performance? And whose performance should be compared? What about comparing the performance of third graders in 1998 with the performance of third graders in 1999–commonly called cross sectional comparisons? Or should last year's third grade performance be compared with the performance of fourth graders in 1999, an attempt to monitor the same group of students from one grade to the next? Does it make a difference?

A series of school-level analyses conducted by researchers at CRESST indicates there is rather low agreement between the rankings of schools using these two different methods of assessing change. Thus, it matters which method is used if schools are to be ranked as a result of their performance on those year-to-year comparisons. In other words, school rankings differed dramatically depending on whether average performance was compared from one year to the next based on grade level (e.g., the third grade in both 1998 and 1999) or on student cohort (e.g., second grade in 1998 and third grade in 1999). Quintile rankings across these two approaches agreed only about a third of the time (see Figures 15). This finding held across the different types of test scores (mean-scaled score, percentile rank of the mean normal curve equivalent, and percent scoring about the 50th percentile) and subject areas (reading, mathematics, language arts, and spelling), although only reading results are provided here.[17] Such inconsistency in rankings across methods advises thoughtful consideration of the method and what it purports to measure before placing much significance on the results.

How did students perform on the STAR augmentation?

The rather poor showing by California students on the norm-referenced portion of the STAR system in 1998 has been attributed to many factors. As we've noted, one of the more widely discussed issues is the lack of alignment between the subject matter assessed by the

SAT-9 test and what was being taught in the public schools. In an effort to better align the assessment with what is outlined in the state content and performance standards, an augmented version of the SAT-9 was created for the subject areas of English and mathematics.[18] It is difficult to interpret student performance on the augmented test since the state has yet to identify what constitutes various performance levels. However the general consensus was that the tests–administered in the spring of 1999–sampled the more difficult elements of the state's standards, and student performance was very low. In most grade levels, students on average correctly answered about half of the items on the English test (see Figure 16). Generally, the percentage of correct answers was lower on the math test at each grade level (see Figure 17), with better performance in the lower grades.[19] Reports at open testimony at the October meeting of the California State Board of Education (1999) recounted anecdotes of students confronted with problems in mathematics far beyond their capability.

It is important to point out again that exactly what constitutes adequate or sufficient performance is undetermined at this time. Thus, not much should be made of student performance on the augmented tests until adequate performance standards are established and verified. Of more concern is the content sampling model used for the augmentation examinations, particularly since they are now termed the "standards-based" element of the STAR.[20] It will be important to follow the extent to which these particular tests are curriculum referenced and thus will reflect appropriate classroom instruction.

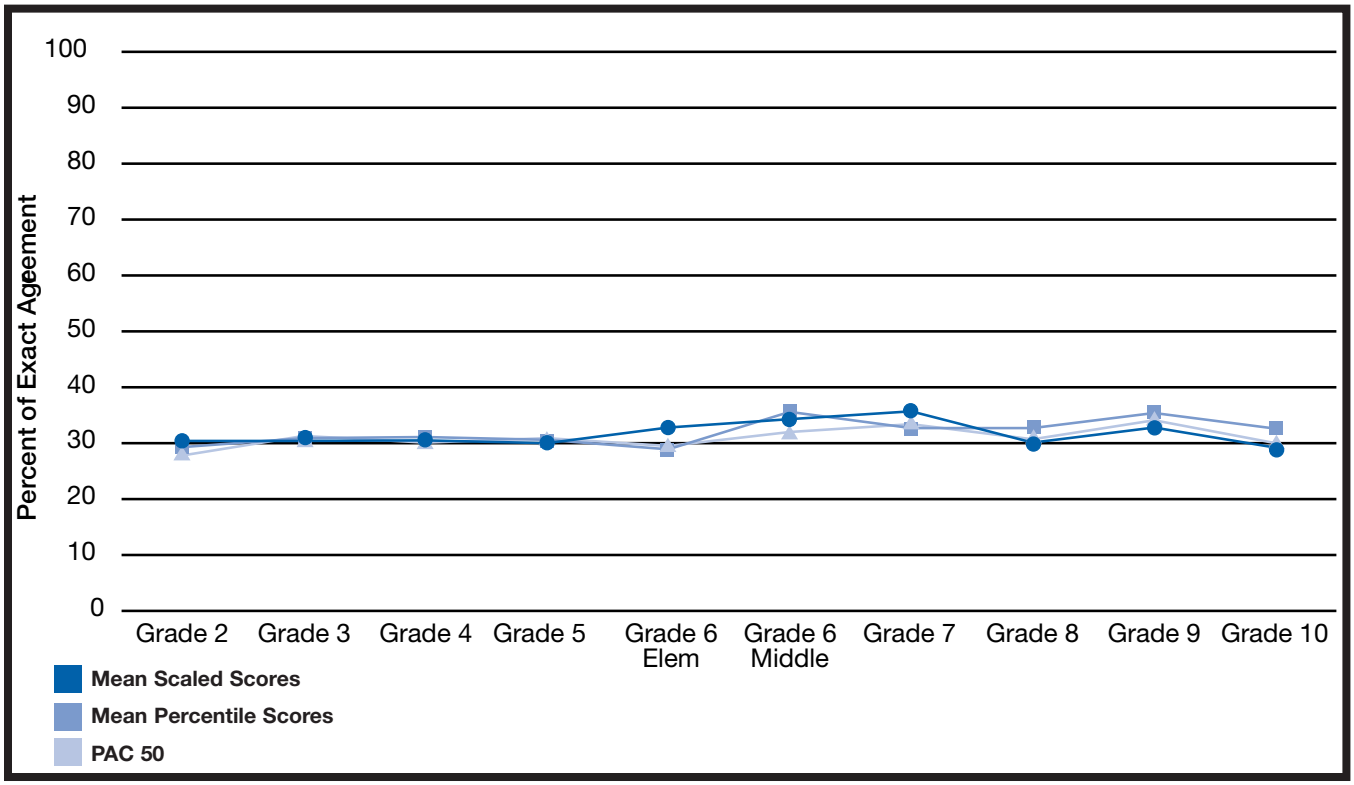

Figure 15. SAT-9 Reading Quintile Agreements

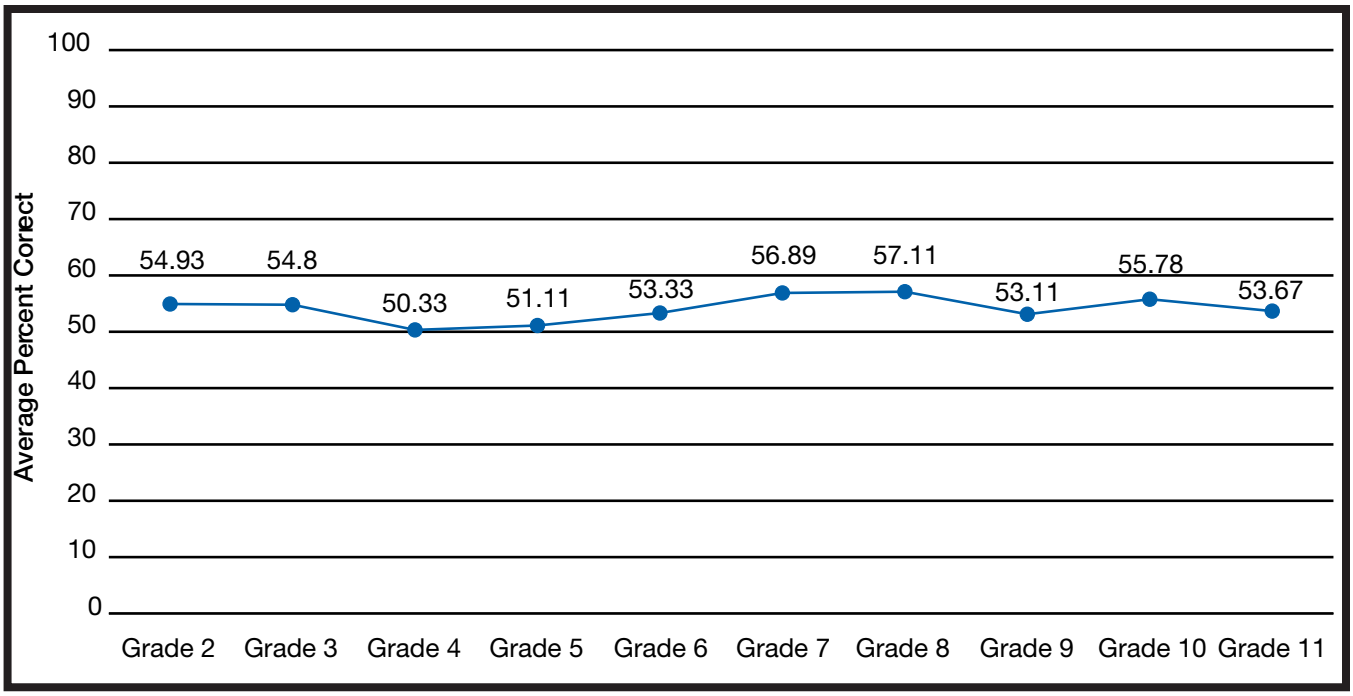

Figure 16. SAT-9 Augmented English

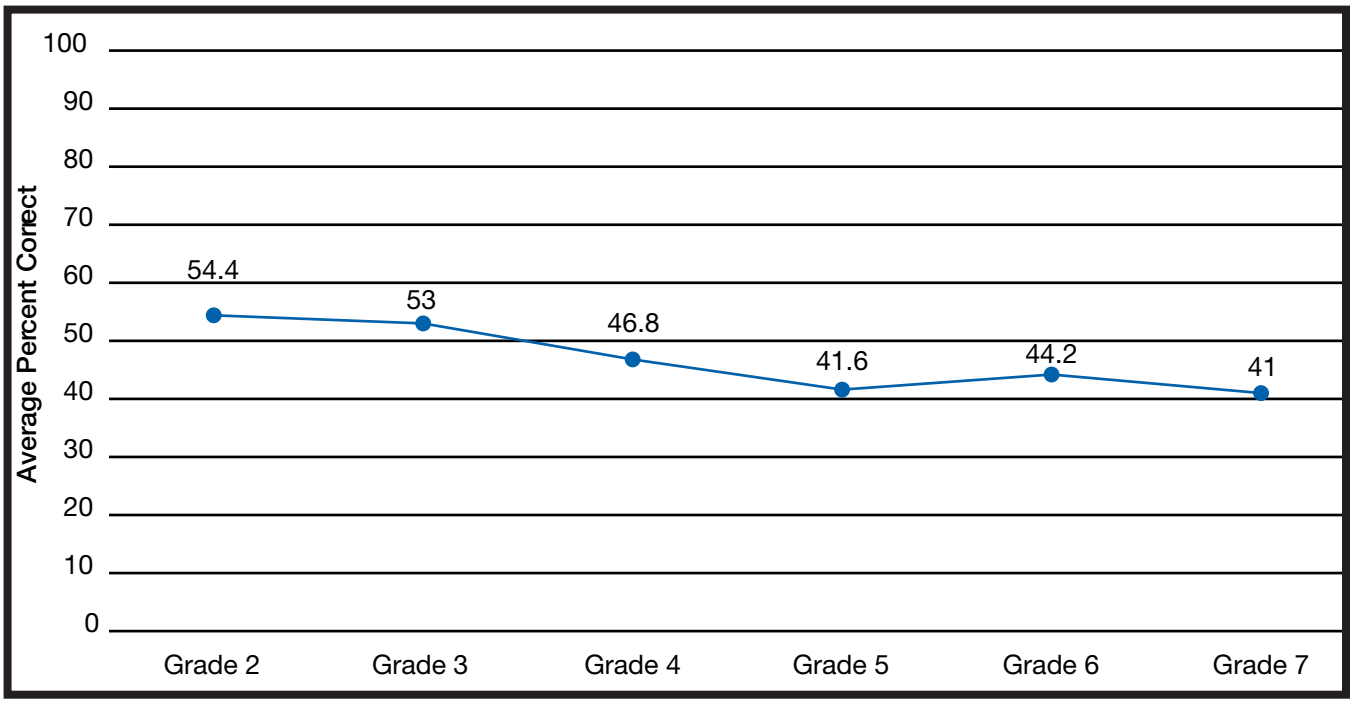

Figure 17. SAT-9 Augmented Math

How is school composition related to a school's SAT-9 performance?

On average, California students scored below the national average on the norm-referenced portion of the SAT-9. But clearly this finding does not imply that all students in the state are performing poorly. In fact, many schools and districts showed exceptionally high levels of average performance. Usually, these schools and districts are those that are challenged least with the forces of poverty and limited English proficiency. Simply stated, California schoolchildren with limited English skills and those from economically disadvantaged backgrounds tend to score lower on the state's standardized test than students with English fluency or those from economically advantaged backgrounds.

This relationship is even greater where the concentration of disadvantaged students increases. Schools with high proportions of students receiving free or reduced-price lunch score considerably lower than schools with lower proportions of such students. Interestingly, the relationship holds for both economically disadvantaged and the more advantaged students at a particular school. That is, the average score for both groups of students tends to be lower in schools were there are high concentrations of poverty. Therefore, it appears the extent to which a school confronts the challenges of teaching impoverished children may affect not just the performance of poorer students, but of all students.

The same result was found for limited English proficient (LEP) students. The average performance of both LEP and non-LEP students is lower in schools with higher concentrations of LEP students. Thus, as in dealing

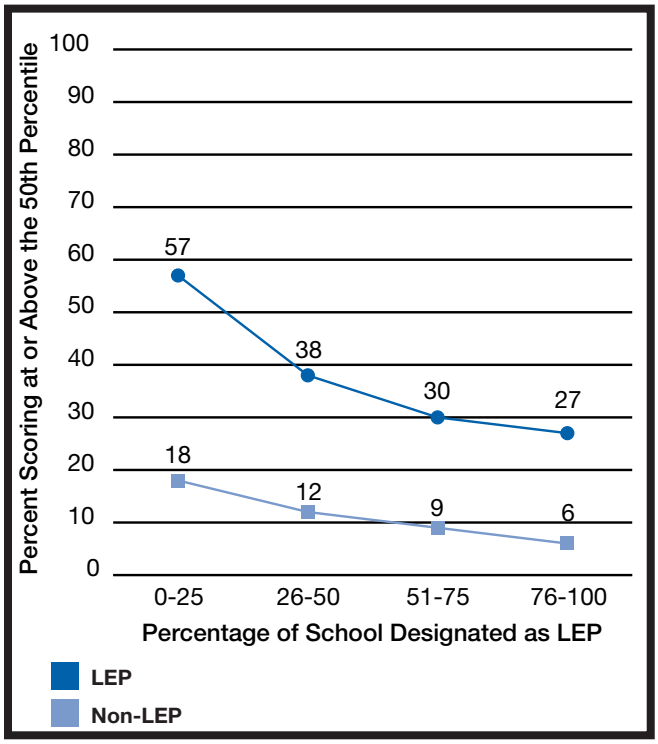

Figure 18. SAT-9 Grade 3 Reading LEP vs. Non-LEP

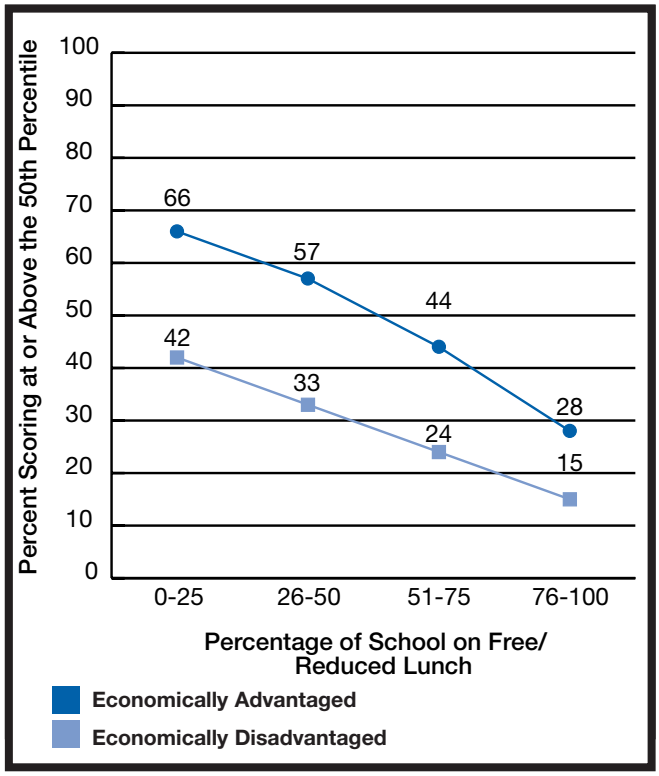

Figure 19. SAT-9 Grade 3 Reading Economically Disadvantaged vs. Economically Advantaged

with poverty, it appears the extent to which a school confronts the challenges of instructing children with limited English skills affects not only the performance of those students struggling to learn the language, but also the performance of students with sufficient English skills.

The observed relationship between language proficiency, poverty, and achievement on test scores is not surprising, and, as mentioned above, partly explains the relatively low overall average achievement of students in California. Since the SAT-9 norm group and the California student population differ dramatically on these key measures, lower average performance for California students as a whole relative to the normative group should be expected. Figure 18 graphically presents how the average performance varies for both those with and without sufficient language skills.[21] When there is a high proportion of LEP students at a local school site, all students perform at lower levels. Figure 19 illustrates similar findings for the problem of student poverty.[22]

The relationship between language proficiency, economic status, and test scores may not be as direct and clear, however, for students who are identified by our analyses as economically advantaged and/or fully English proficient because of the limits of the variables available to us. Clearly, those who are not eligible for free or reduced-price lunch (the advantaged or "non-disadvantaged" group in our analyses) represent a large range of socio-economic status (SES), from students whose families are just on the margin of qualification to those whose families reflect a very high level of SES. It may be the case that the relatively more advantaged students in schools that have high proportions of impoverished students are different from and relatively less economically advantaged than those who are in schools with low proportions of children qualifying for free or reduced-price lunch. It may well be that these actual SES differences account for the differences in "non-economically disadvantaged" groups across the different types of schools.

Similar conclusions could be drawn for differences between the non-LEP population in schools serving a large proportion of LEP students compared to those that serve few or no LEP students. In the former case, a large proportion may be non-native English speakers who have relatively recently transitioned to English proficiency, but whose English language skills still are not totally secure; poverty may be another intervening variable. And it may be that it is these differences in the nature of the non-LEP group across the various types of schools that cause the observed performance differences. In any event, the relationship between school composition and the performance of different subgroups is vitally important and merits additional scrutiny.

NAEP Results

The National Assessment of Educational Progress (NAEP) is a federal effort at a nationwide assessment of educational achievement, conducted every few years nationally and including state-by-state comparisons in recent years for most states across the country. Generally, California students have performed poorly compared with the rest of the country. For instance, for the 1996 assessment of eighth-grade mathematics, California ranked 31st out of 41 states. The state did even worse in fourth-grade reading, coming in dead last out of 38 states. As indicated in Figures 20-23,

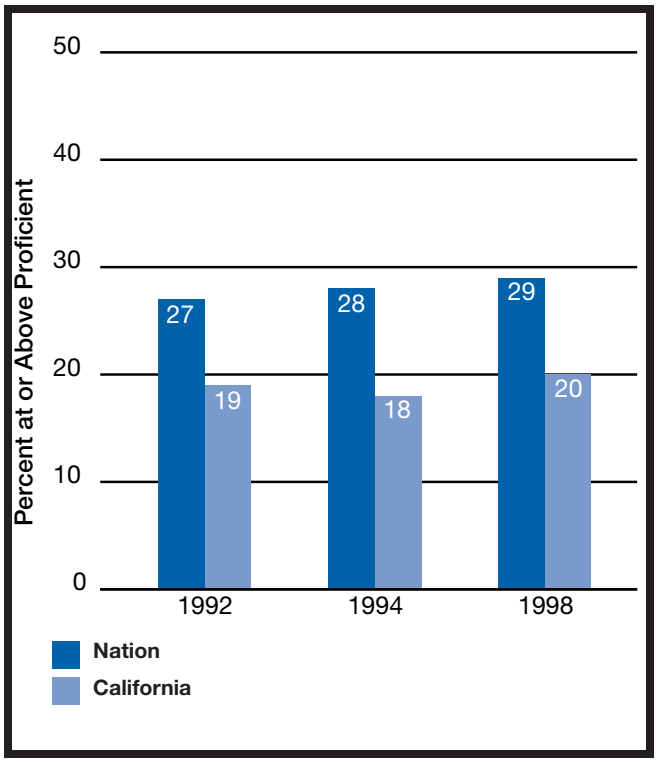

Figure 20. NAEP Grade 4 Reading 1992, 1994, and 1998

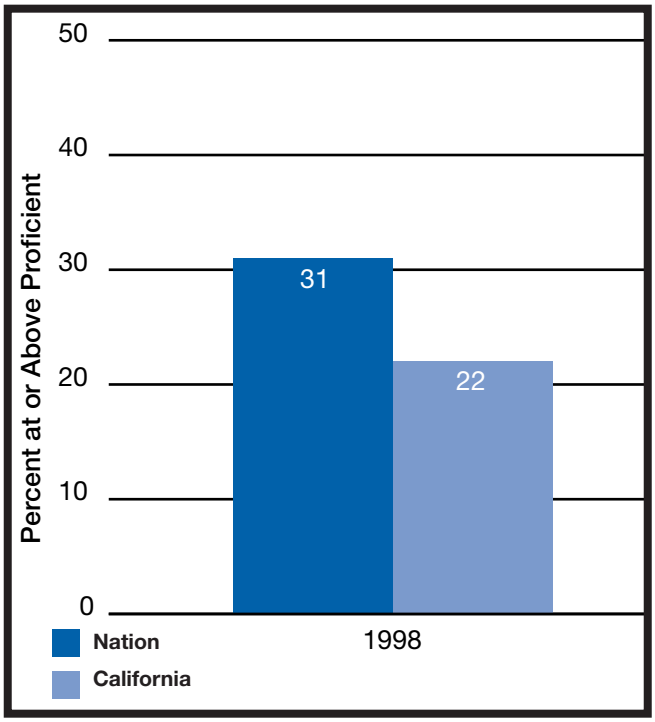

Figure 21. NAEP Grade 8 Reading 1998

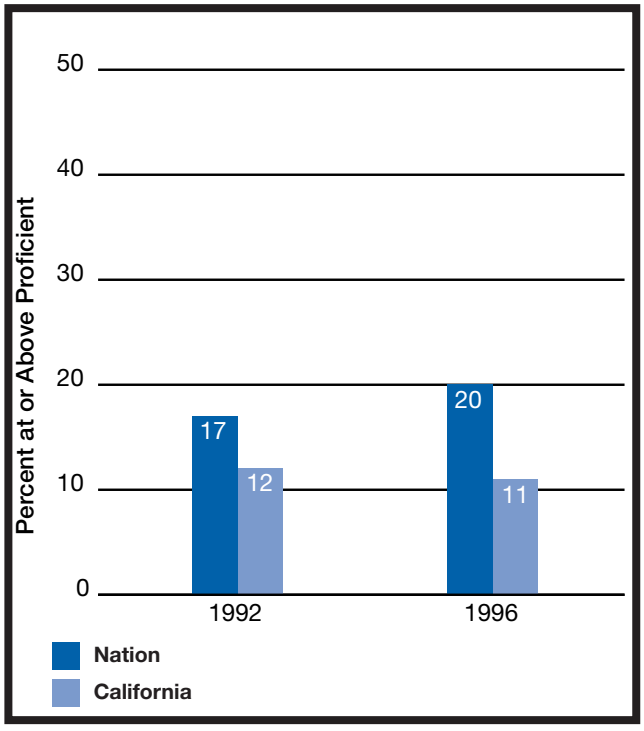

Figure 22. NAEP Grade 4 Math 1992 and 1996

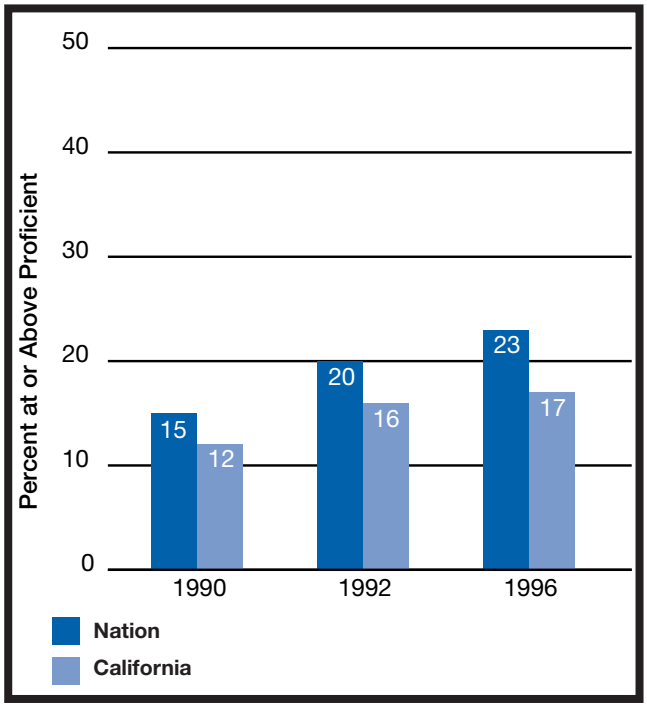

Figure 23. NAEP Grade 8 Math 1990, 1992, and 1996

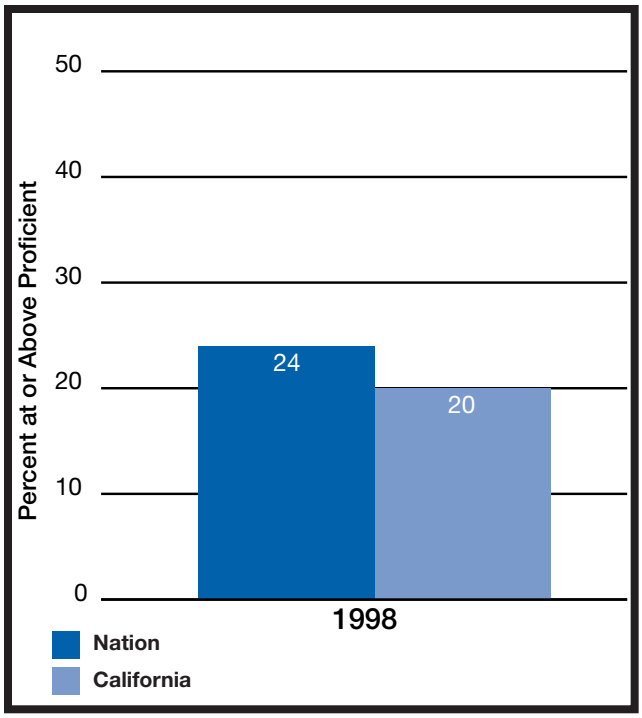

Figure 24. NAEP Grade 8 Writing 1998

California lags the nation in grades 4 and 8 in both reading and mathematics achievement. Only 17 percent of California students performed at the proficient level in eighth-grade mathematics and 11 percent achieved that standard in fourth-grade mathematics–both of which are much lower than the national rates. Similarly, in eighth-grade writing, only one in five California students achieved at or above the proficient level, compared to one in four nationally (see Figure 24). Clearly, California students' performance does not compare favorably to either the national sample or the standard of proficient performance.

Comparisons often provide a clear way to understand the meaning of performance. One way to understand California's NAEP performance is to compare it to other states with similar characteristics. For example, with relation to poverty, 16.5 percent of California schools in the 1992 NAEP reading sample showed 75 percent or more students on free or reduced-price lunch, and in the 1994 assessment, the figure was 16.6 percent of the California school sample.[23] In those two assessments, only 12.7 percent of those sampled in poverty-stricken schools scored at or above basic (the lowest level of achievement) in 1992, increasing to only 14.8 percent in 1994. Looking only at 1994 findings, ten states had higher percentages of schools in poverty than California. All of these states–Alabama, Arizona, Florida, Georgia, Louisiana, Mississippi, New York, New Mexico, South Carolina, and Texas–had higher proportions of disadvantaged students reaching the basic level than did California. In fact, some states with significantly higher proportions of schools in poverty, for example Georgia with 22.3 percent, Mississippi with 39 percent, and New Mexico with 26 percent, were substantially superior to California on this metric (Georgia and Mississippi with 29 percent scoring at basic and above, and New Mexico with 32 percent of students scoring at basic or above). Only one entity, the District of Columbia with about 62 percent of the schools meeting this poverty definition, scored below California, at 13.9 percent. Even so, the District of Columbia is doing a better job proportionally for its students when one looks at poverty and performance conjointly. These numbers show that the U.S. overall has a long way to go in educating its poor students, and California is clearly lagging behind the country.

In mathematics, the situation is comparable for the 1996 data. Twenty-one states have higher proportions of impoverished students than California and of these only the District of Columbia performed more poorly. For example, West Virginia with 29.7 percent poverty

had more than 60 percent of its students reaching or exceeding the basic level in mathematics.

Not all of the news from the NAEP assessment in California is bad. Other NAEP performance data[24] indicate the performance of low-income students in fourth-grade math is increasing. Education Watch reports a 7.8 percentage point increase in the number of these students scoring at or above the basic performance level from 1992 to 1996. In terms of cohort growth, furthermore, when one examines how fourth-graders performed on the 1992 mathematics assessment compared to the same cohort as eighth-graders in 1996, we find California in the top third of the states on this progress measure.[25] Clearly, California needs to continue to make progress and has a long way to go.

Drop-Out/Graduation Rates[26]

Despite the extensive focus placed on standardized test scores, other indicators of student performance have been collected and will be incorporated into the state's accountability index at some undetermined future date. Two of them are the drop-out rates and completion rates for high school students. Definitions of dropouts often vary. California officially defines a dropout as a student at or above seventh grade who misses school for 45 consecutive days and does not enroll in another school. School completion rates tell us the proportion of high school seniors who graduate relative to those enrolled at the beginning of the year. Both of these indicators represent important ends in themselves, but also enable us to assure that improvements in test scores are not coming at the expense of more students being pushed out of school.

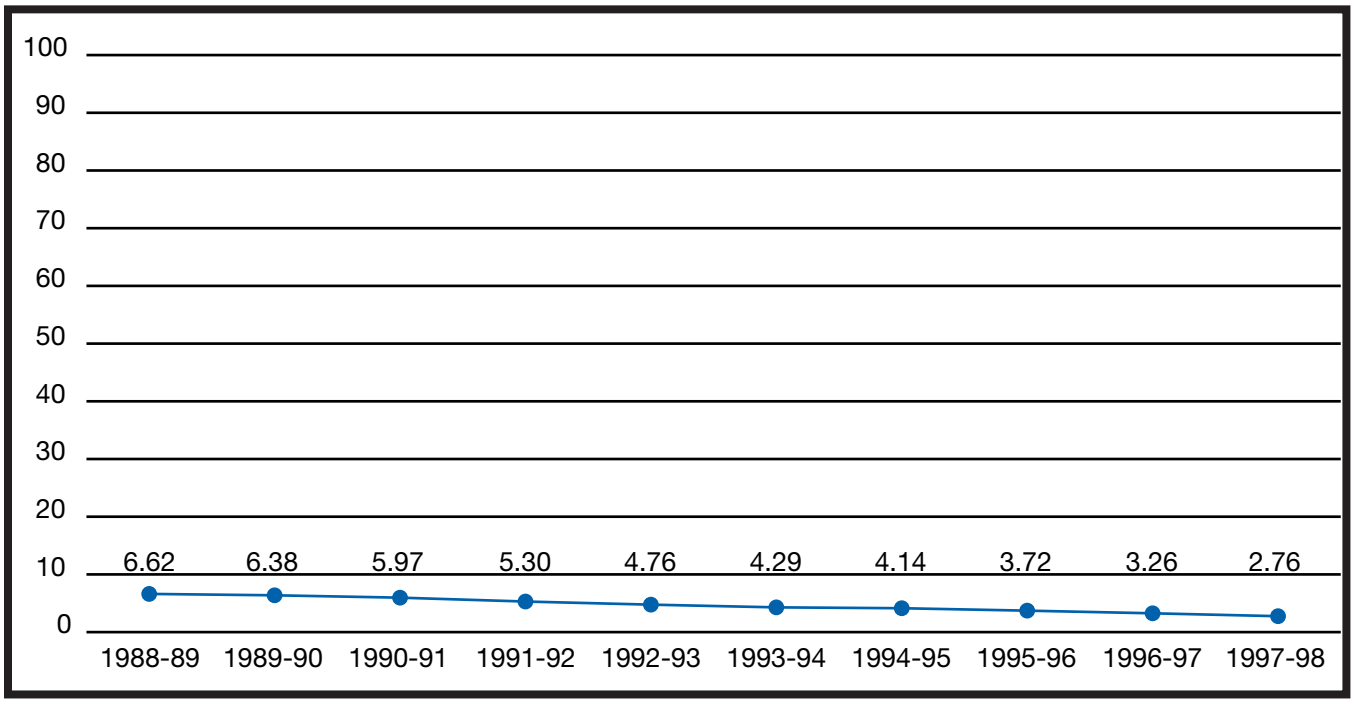

Figure 26. California High School Dropout Rates 1989-98

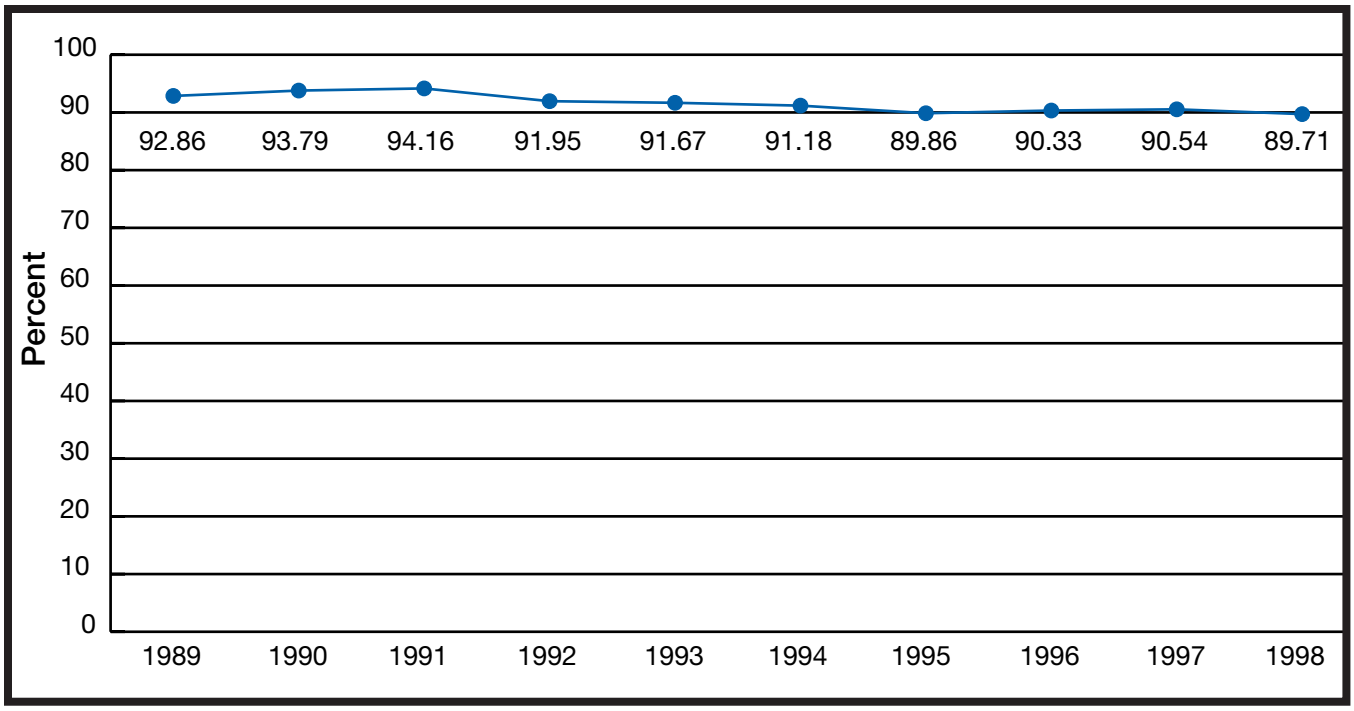

Figure 26. California High School Graduation Rates 1989-1998

Unfortunately, data regarding these two indicators are often unreliable or inaccurate because schools across the state do not use uniform definitions or share equally careful procedures for collecting the data. Poor data management may record students as dropouts when they have simply moved their home, or dropped out and then returned, after an extended hiatus. California is moving to a statewide student data system that will permit more precise understanding of these indicators. Nonetheless, in Figures 25 and 26, we use data from the California Department of Education to present ten-year trend lines of drop-out and graduation rates for California high school students. Drop-out rates are steadily declining and have done so in each year of the period. Graduation rates, on the other hand, have remained fairly stable, at around the 90 percent to 91 percent, though the rate was a few points higher at the beginning of the decade.

High School Course-Taking Patterns [27]

In California, high school students may choose to take a series of courses specifically defined to meet the University of California and California State University entrance requirements. These courses include the following:

- History/Social Science—two years required.
- English—four years required.
- Mathematics—three years required, four years recommended.
- Laboratory Science—two years required, three years recommended.
- Language Other than English—two years required, three years recommended.
- College Preparatory Electives—two years required. Two years (four semesters) in addition to those required in "A-E" above.

How many graduating students have actually completed this course series is, in some ways, a good indicator of how well the high schools in the state are preparing students for college in

the state's university system. It's also a marker for students' plans for college. Over the past ten years, the rate at which graduating seniors have met these course requirements has been consistently climbing. As shown in Figure 27, whereas fewer than 30 percent of graduates met the requirement in 1988, more than 38 percent did so in 1997.

Interpreting these changes depends upon how serious course titles match with actual course content. There is considerable evidence that actual topics covered and difficulty of content may vary in different courses with the same name. So at the least, increased college preparatory course-taking reflects better motivation if not always an increase in student performance.

Advanced Placement Examinations[28]

Another secondary school measure of interest is the availability of and participation in advanced placement courses and examinations. Advanced Placement courses reflect college-level course work, and students passing advanced placement exams receive college credit. Thus, the percentage of students taking AP courses and passing the exams is an indicator of the extent to which students are being prepared for, pursuing, and are being successful in rigorous academic coursework. Because of the rigor of the courses, students receive extra points for their grades in these courses (5 for an A, 4 for a B), which in turn advantages their grade-point averages for college admissions. Recently civil litigation was brought against at least one California school district for allegedly providing disproportionate AP opportunities to students of varying ethnic backgrounds.[29] Though we do not present data on the availability of AP courses here, we do have some data on the frequency with which various ethnic groups take AP examinations, and contrast those numbers with the percent-

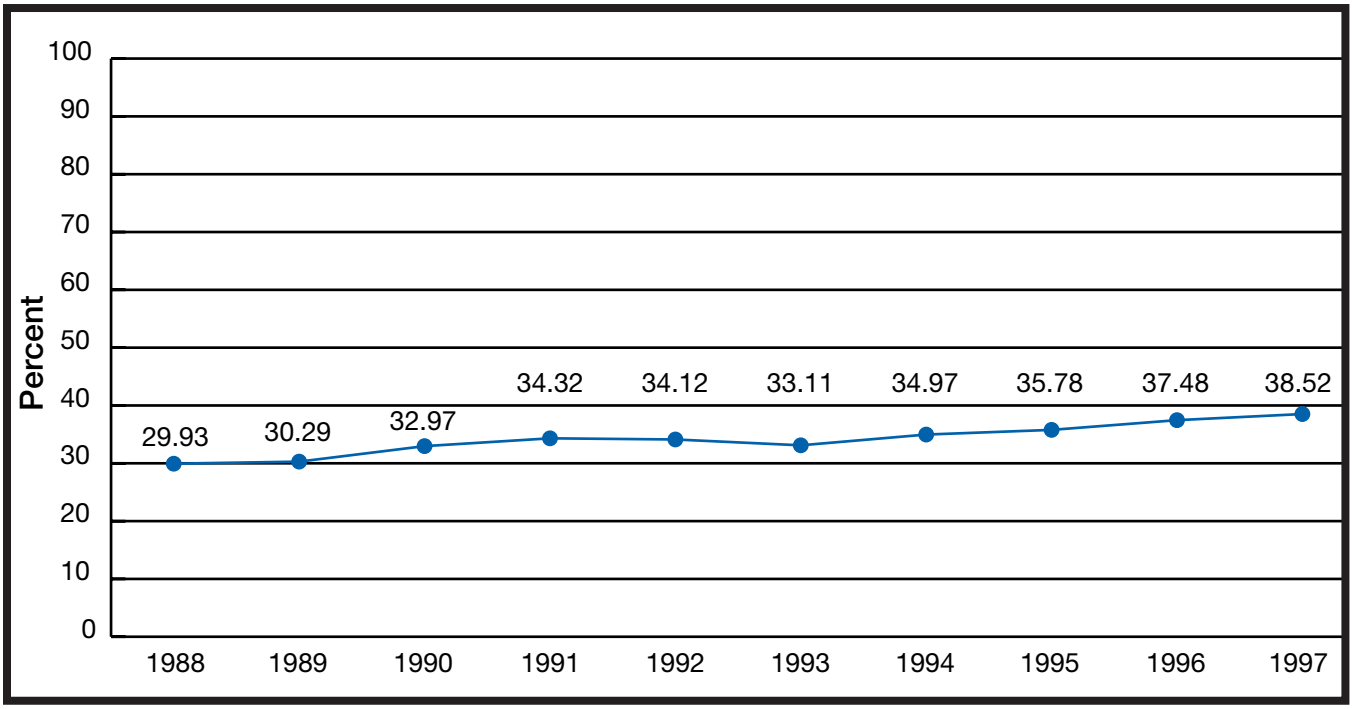

Figure 27. High School Graduates Meeting UC/CSU Course Requirements 1998-1997

ages of each group in the student population. For instance, African-American students comprise 8.8 percent of the public school population, 3.5 percent of students taking the English Advanced Placement examination, and 2.5 percent of students taking the calculus test. In contrast, students of Asian ethnicity comprise 11.2 percent of the student population, but account for 28.1 percent of the English AP test takers and a whopping 42.8 percent of those sitting for the AP calculus examination.xxx Clearly, the ethnic makeup of students taking Advanced Placement examinations is not representative of the California student population as a whole.

One positive finding regarding the advanced placement data is the increased frequency with which California students are meeting the AP qualification standards. Since the 1991-'92 academic year, this rate has steadily improved every year, going from 9.2 percent at the beginning of the decade to 14.8 percent last year (see Figure 28).

College Entrance Examinations[31]

College entrance examination scores are another measure of who California high schools are preparing for college. As the figures below indicate, the performance of California's college-bound student population on the Scholastic Achievement Test (SAT) has been fairly stable over the last ten years. For both the math and verbal components of the test, statewide average scores dipped in the early part of the decade, but have steadily climbed back near the levels attained at the end of the last decade. For math, the achievement levels of the late 1980s have actually been surpassed in the last two years.

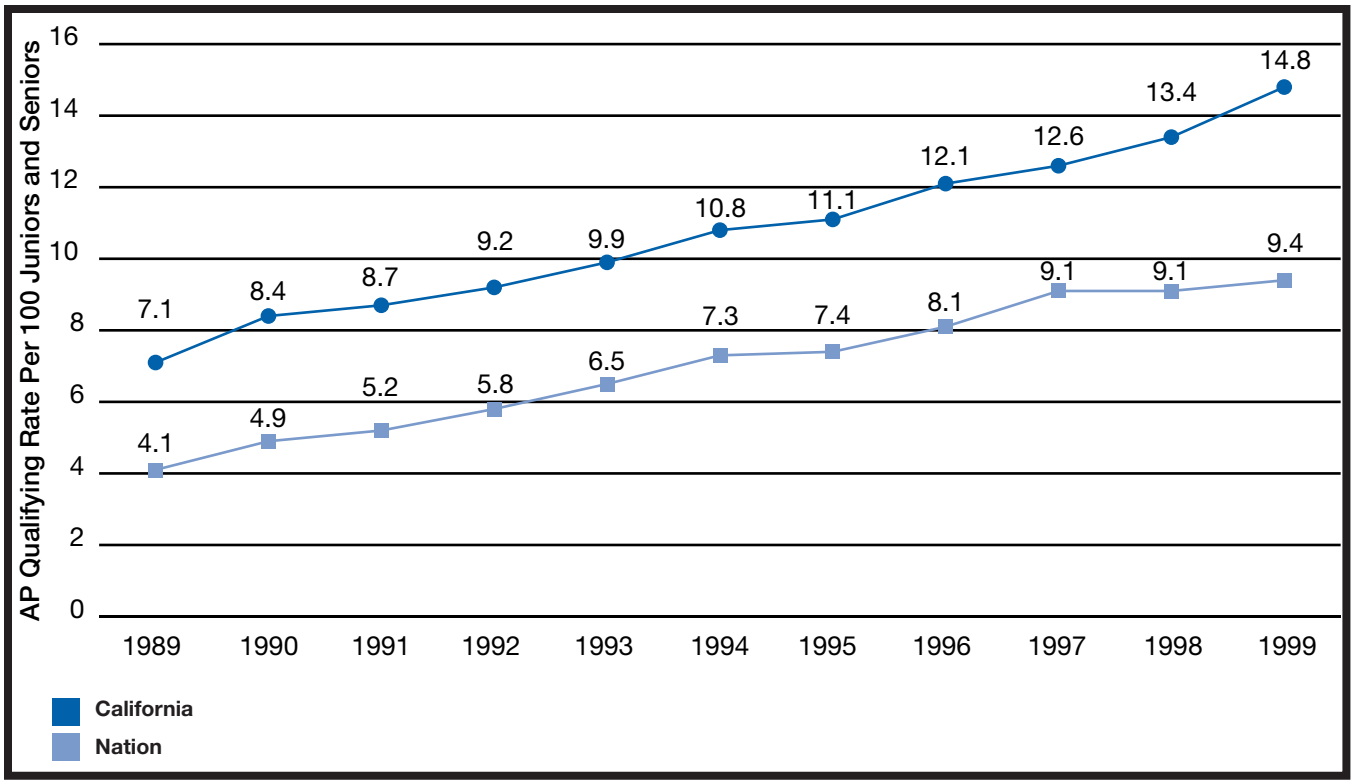

Figure 28. Advanced Placement Qualifying Rate 1989-1999

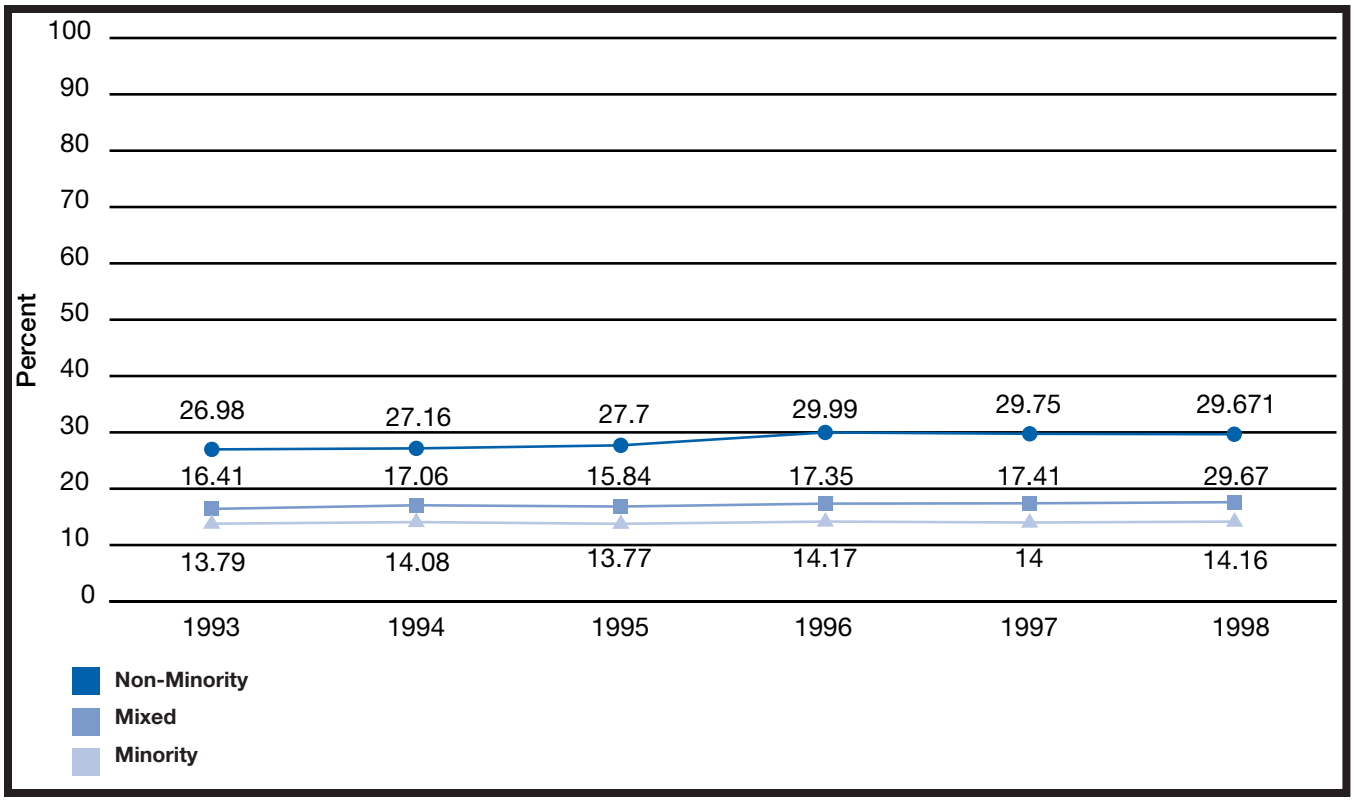

Figure 29. Students Meeting SAT Criteria in California 1993-1998

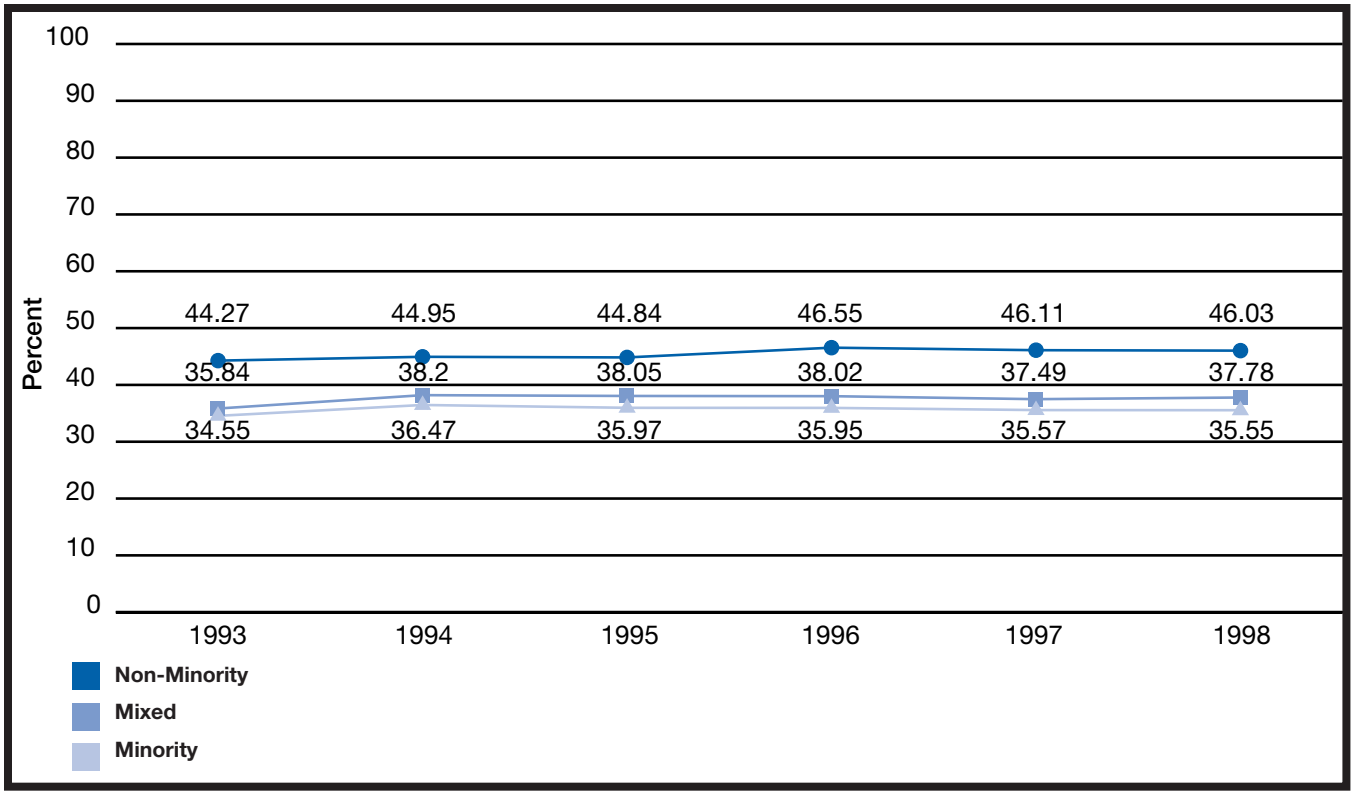

Figure 30.SAT Test Takers in California 1993-1998

As in the average scores for the math and verbal component of the SAT, there appears to be a rebounding trend in the percentage of test takers meeting or exceeding the combined 1000-point threshold. This measure, too, experienced a slight dip in the early 1990s but has inched up to remain between 18 and 19 percent over the last three years, levels comparable to the latter part of the 1980s. Of course, these rates vary by high school, with schools comprised of high minority populations achieving rates at roughly half those of low minority schools (see Figure 29). And as Figure 29 suggests, the differences in these rates do not appear to be decreasing over time.

Similarly, the rate at which high school seniors are taking the SAT has changed little over the last six years. As shown in Figure 30, the percentage of twelfth-graders taking the SAT in low minority schools has remained stable at around 46 percent, while that rate has hovered around 36 percent for high minority schools over the same time period.

College Attendance

Data from *Education Watch* 1998 indicate that 66.4 percent of high school graduates in 1996 went on to enroll in college (full or part-time) by the time they were 19 years old. This rate ranked California fifth out of 50 states in providing students access and opportunity for college. However, college completion rates for minority students entering as freshmen—deemed the equity rate—is not so rosy. The equity rate for California is 58.4 percent, which is below the national average of 65 percent. California's four-year graduation rate is 41 percent, meaning that less that half of entering freshmen graduate within a four-year period.

College Remediation Rates[32]

Part of the reason for the lower completion rates may be the fact that California has a high number of part-time community college students. Another reason may be the fact that many students enroll in college with severe limitations in their basic reading and mathematics skills. In the California State University system, more than 54 percent of incoming first-year students are required to take remedial math and more than 47 percent need remedial reading classes. In the state's elite University of California system, more than a third of the students fail to meet the minimal standards of writing proficiency.xxxiii This number has improved in the last year, from 38.9 percent in 1997 down to 33.3 percent in 1998. However, this indicator still suggests that although more high school graduates are completing the required sequence of high school courses, a great many are not at the basic levels of reading and mathematics ability that successful transition into a university education requires.

Summary of Achievement

California student achievement is low compared to the rest of the nation. This is true based not only on SAT-9 scores but also on the NAEP. Average student performance in some schools is better than in others, and it is fairly easy to identify which schools these are by who is going to them. Although students now take an additional test designed to address their mastery of state-determined subject-matter standards, it is not ready for widespread implementation. Essentially across-the-board minimal gains on observed scores from the SAT-9 in 1999 compared with 1998 probably signify familiarity with the process more than "real" improvement.

Moreover, different measures of improvement greatly disagree with one another.

At the secondary level, we have seen improvements in reducing drop-out rates and maintaining graduation rates. Graduating students are taking more nominally challenging course loads, and greater numbers of them are meeting advanced placement requirements, although the rates of advanced placement test-taking vary markedly by ethnicity. Students are scoring higher on college entrance examinations, but the percentage of seniors taking the examinations is holding steady. On the positive side, California does a good job of providing college opportunities to high school graduates. Unfortunately, these students often are not prepared for the fundamental academic requirements for success in higher education.

On a more troubling note, the relationship between the socio-demographic complex of poverty, language skills and ethnicity and standardized student achievement measures is immense and getting stronger.[34] Over the past six years, this relationship has strengthened, not diminished (see Figure 31). These background measures relate to average school performance on the SAT at an extremely high level, accounting for greater than two-thirds of the variation in scores among schools. Similar evidence is found for the SAT-9 test, particularly at the lower grades, where background measures account for 60 to 80 percent of the variance in average school scores in reading, spelling, and language arts (see Figure 32).[35] A somewhat weaker relationship is found between background measures and mathematics, although a majority of the variance is still accounted for at each grade level, from a low of 56 percent in grade 2 to a high of 67 percent in grade 4.

The relationship is clear. More poverty relates to lower average scores. More limited

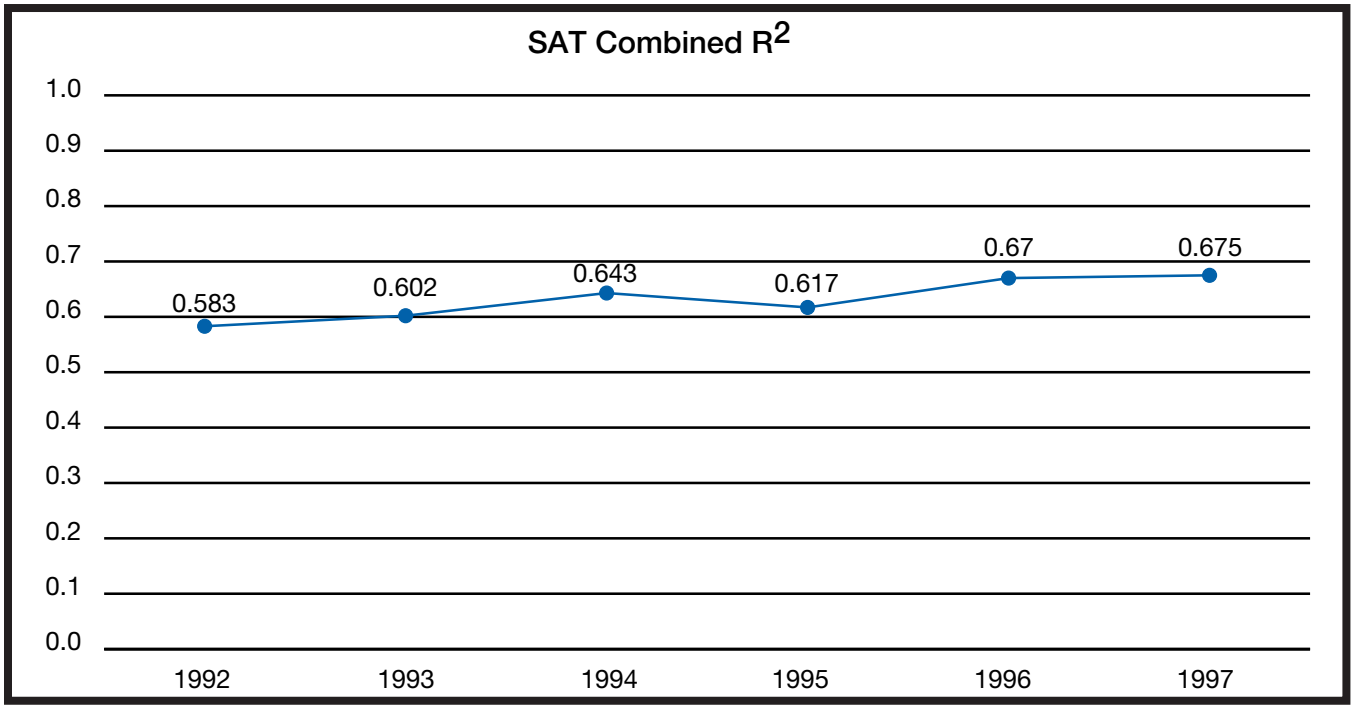

Figure 31. Relationship Between Socio-Economic Measures and SAT Scores 1992-1998

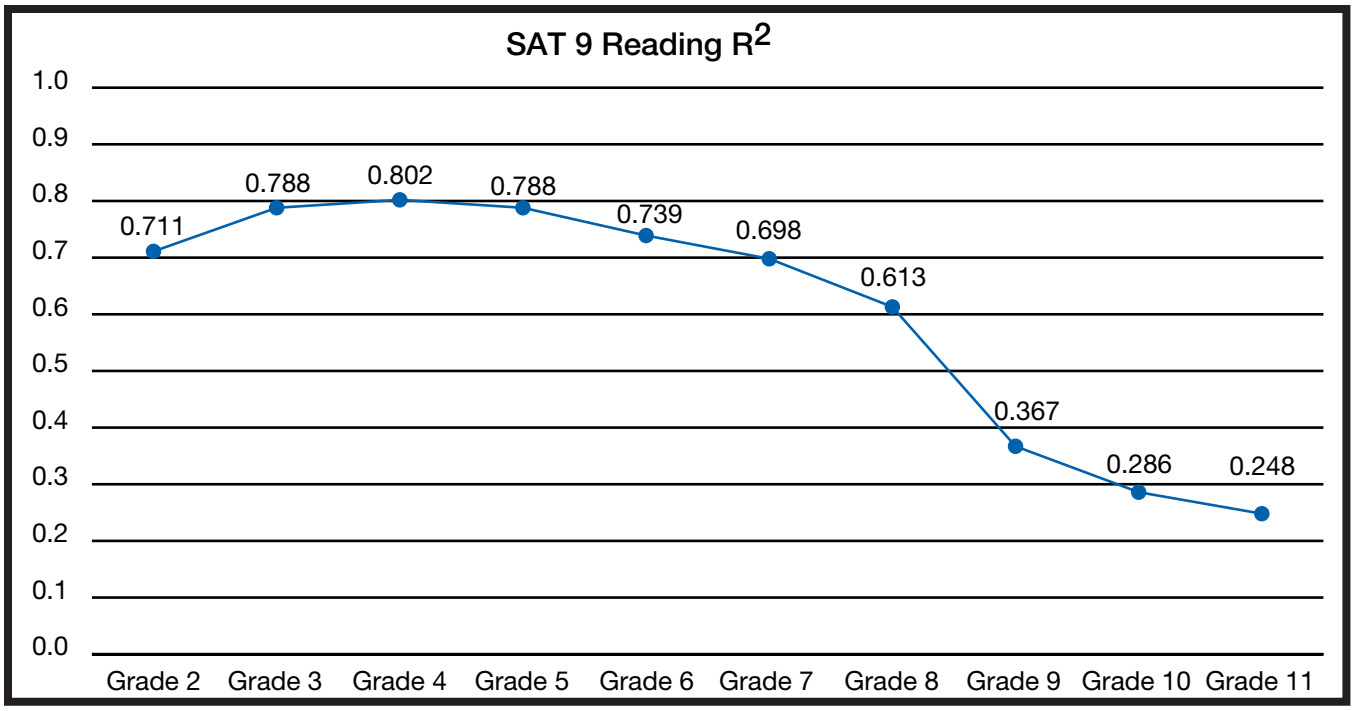

Figure 32. Relationship Between Socio-Economic Measures and SAT-9 Reading Scores

English skills relate to lower average scores. Greater minority representation in the student population, sadly, also relates to lower average scores. Poverty is increasing as the percentage of students qualifying for free or reduced-price lunch has risen from 32.19 percent in 1989 to 47.61 percent in 1999. Similarly, the percentage of California students with limited English proficiency has jumped from 16.29 percent in 1989 to 24.89 percent in 1999. Both of these increases represent about a 50 percent jump over the past decade (see Figures 33-34). Over the same period, the minority population has risen only slightly, but consistently (see Figure 35). And poor performance doesn't just affect those students who lack language skills or sufficient monetary resources. Students fully proficient in English and those not eligible for free or reduced-price lunch in schools with high concentrations of LEP and economically disadvantaged students perform more poorly than their counterparts in schools with lower numbers of these disadvantaged students.

The goal of California schools is to prepare all students to reach high academic standards. To do so, the educational system should seek to reduce the impact socio-demographic measures have on student achievement. Student achievement should relate more to what students learn in the classroom than to their background. Unfortunately, we currently are not seeing the desired effect.

Why? We have to consider the sensitivity of our measures to instructional change, to the capacity of the schools and school districts, to the motivation of students and parents, and to the period of time (fewer than two years) that California standards have been in place.

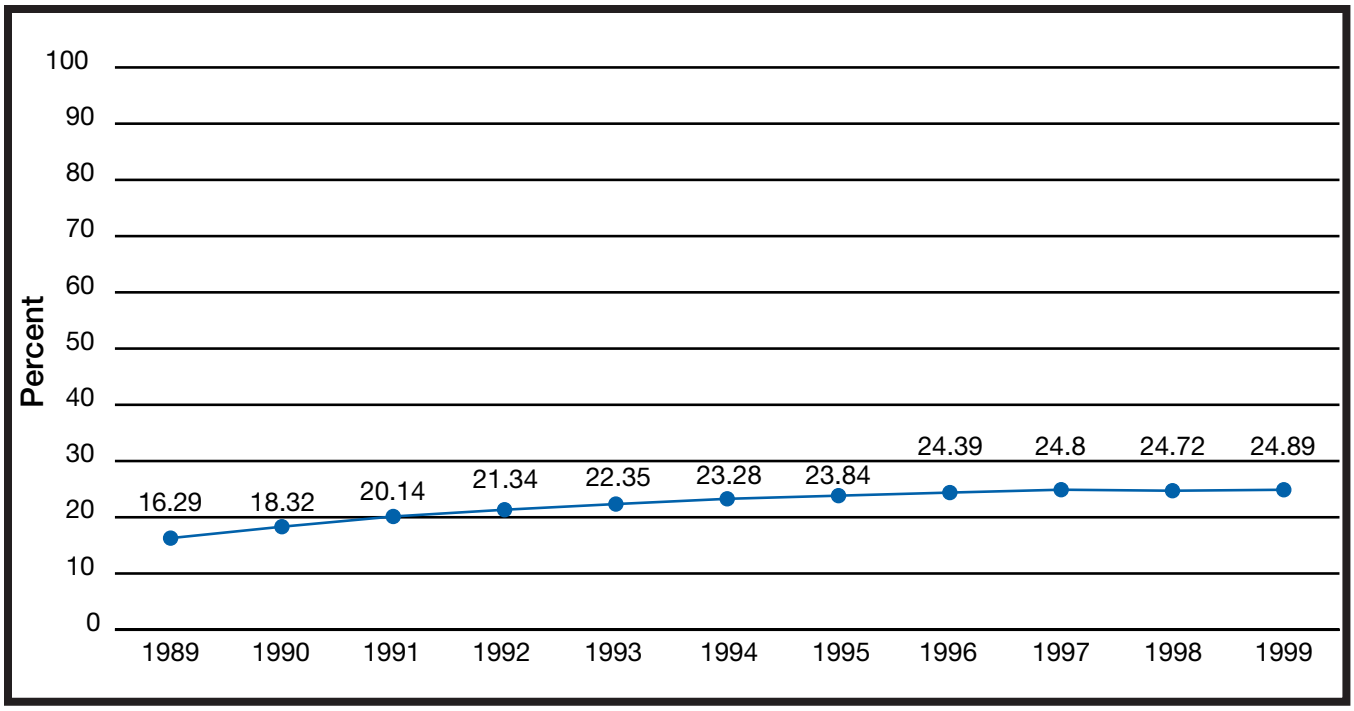

Figure 33. Limited English Proficient Students in California 1989-1999

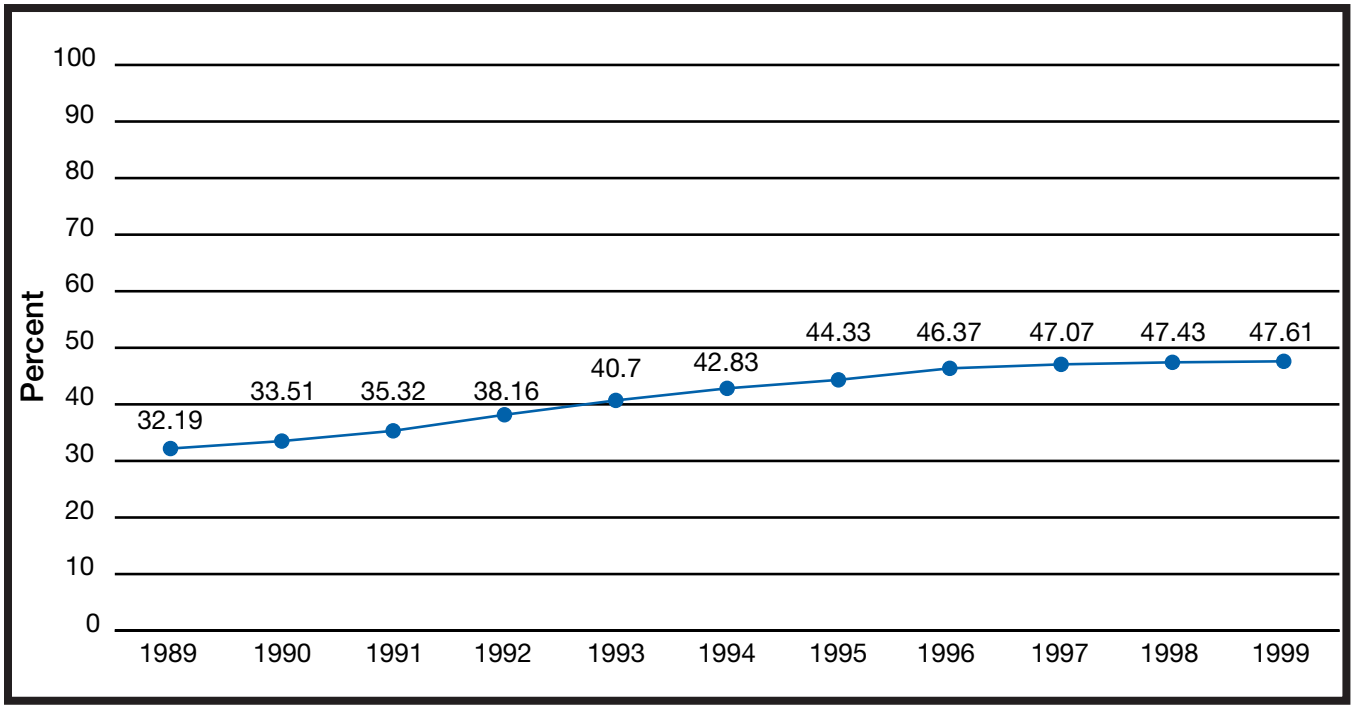

Figure 34. Students Receiving Free or Reduced Lunch in California 1989-99

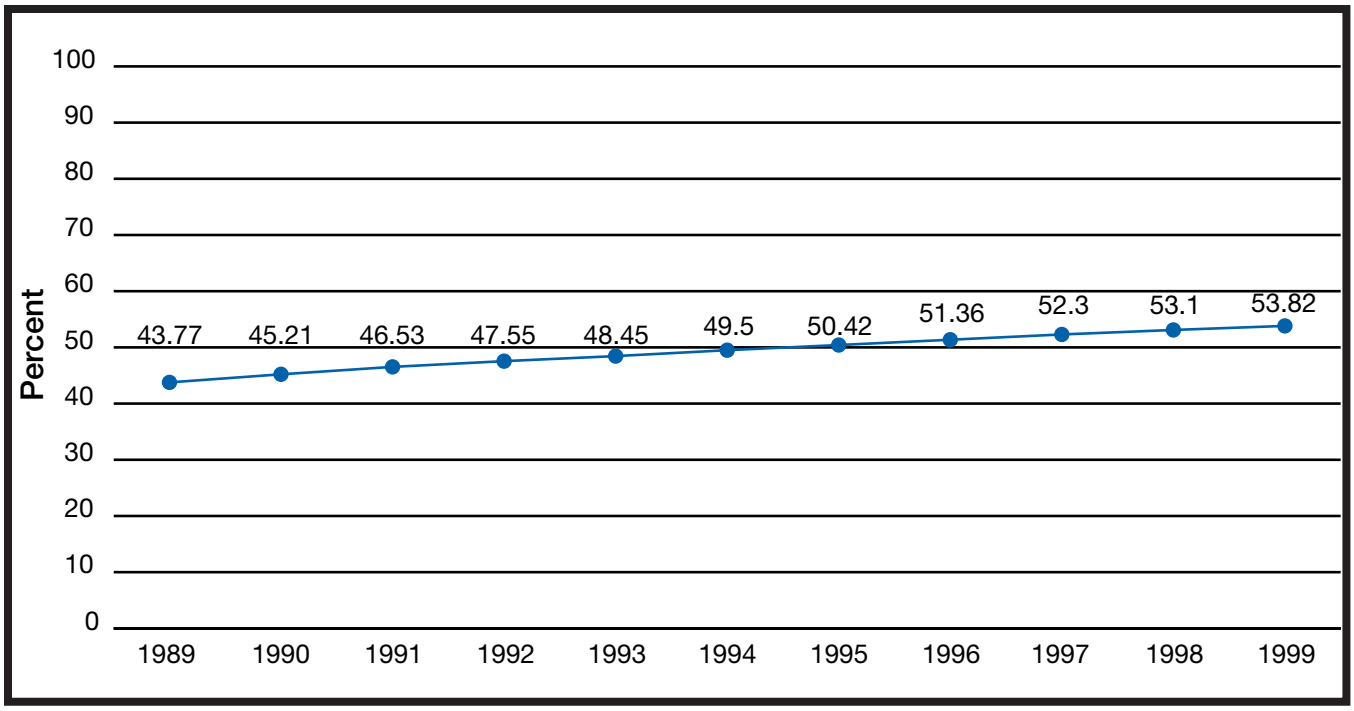

Figure 35. Minority Students in California 1988-1999

The Future: Assessment and Accountability

With the adoption of the Academic Performance Index (API) in November 1999, California has moved into a new level of educational accountability. It has adopted a general plan to use assessment and other key school data, e.g., student absences and graduation rates, as part of a system to hold schools accountable. The plan is supposed to support *standards-based reform*. Over a six-month period, a committee of school policy-makers, academic experts, and practitioners met and prepared the requirements of the API. The details are available on the Department of Education Web page (www.cde.ca.gov) and will eventually cover how growth targets are set (based on the distribution of performance of students at the school), how comparisons are made, the expectations for identifiable subgroups, and sanctions and rewards. What is of most relevance here is the degree to which the API relies on assessments, and related to that, the degree to which the assessments represent and propel progress on the state's standards for student performance. The original plan for the API involved phasing in various assessments as they became available to bring the assessment into closer alignment with the standards. However, for the 1999-2000 year, only performance on the SAT-9 component of STAR enters into the accountability index.

Prior to adopting the API details, the California State Board of Education adopted a framework that enunciated principles to guide the use of the accountability system. The criteria comprising this framework are reproduced in Figure 36 below.

The relevance of these principles to concerns we have raised earlier about assessment and criteria for quality assessment systems is

Academic Performance Index Framework

- The API Must Be Technically Sound
- The API Must Emphasize Student Performance, Not Educational Processes
- The API Must Strive to the Greatest Extent to Measure Content, Skills, and Competencies that Can Be Taught and Learned in School and that Reflect the State Standards (our emphasis).
- The API Must Allow for Fair Comparisons
- The API Should Include as Many Students as Possible In Each School and District
- The API Must Measure School Performance and Growth as Accurately as Possible
- The API Should Strive in the Long-Term to Measure Growth Based on Student-Level Longitudinal Data
- The API Should Be Flexible and Its Component Indicators Should Be Stable
- The API Should be Understandable, Particularly to Educators and Parents
- The API Is Part of an Overall Accountability System That Must Include Comprehensive Information Which Incorporates Contextual and Background Indicators Beyond Those Required by Law
- The API Should Minimize Burden
- The API Should Support Local Accountability Systems
- The API Must Conform to the Requirements and Intent of the Public Schools Accountability Act of 1999 as Well as Related Legislation

Figure 36: Academic Performance Index Framework[36]
(Adopted by the California State Department of Education at their July, 1999 meeting)

Relevant Standards for California from the Standards for Educational and Psychological Testing

- State Purpose(s) and Minimize Negative Consequences of the test
- Give Evidence of Technical Quality of the test for Each Purpose
- Document Relationship to Content Standards
- High Stakes (Promotion) Requires Match Between Instruction and Test Content
- Give Evidence of Suitability of Test for Program and for Test Population
- When Use of a Test or System Implies a Specific Outcome, Provide Basis and Evidence for Expectation
- Minimize Possible Misinterpretation of Data with Appropriate Context
- No Student Decision Should Be Made on the Basis of One Test
- Test Preparation Should Not Adversely Impact Validity of Results
- Reports Should Include Classification Error and Error in Measurement of Change
- Public Interpretation Should Be Handled by Trained Personnel

Figure 37: Relevant Standards for California from Standards for Educational and Psychological Testing
(Adopted by the California State Department of Education at their July, 1999 meeting)

clear. In addition, the evolution of assessment for accountability in California calls for careful analysis. In general, California is starting with a measure—the SAT-9—that has only limited relationship to the state's standards. While there are plans to add more elements down the line, the current accountability provisions may work to encourage a near exclusive focus on the SAT-9, since it was the first and most salient measure in use.

In adhering to the principles articulated by the state board, which in a preamble explicitly commit to continued studies of the validity of the state's assessment system, it may be relevant to reference yet another set of guidelines for the design and use of assessments. From the recently published Standards for Educational and Psychological Testing[37], the following paraphrased standards are applicable to California planning and evaluation.

As California moves forward with its assessment and accountability system, it will be important that it do so in line with its own principles and those of the testing profession.

Conclusions

Starting with the available data, the story about California is mixed. When examining the overall performance on the SAT-9, we find that the state average, over all grades and all subject matters, is below the national average. However, when we account for the state policy requiring that all students who have been in school for one year take the test—whatever their English proficiency—we find California students positioned around the national average. In fact, given the difference in the composition of the tested population and the norming groups, this result is somewhat better than we might expect.

However, when we move to standards-based measures, of which NAEP is a general example, California performance looks poor indeed. California especially falters when one addresses the performance of children in poverty. Also, it is important to recall that on the NAEP, only students who can comprehend the examination are tested. What will be important to watch in the future is whether California students, like those in many other states, at the outset have lower performance on new standards-based tests. We would expect lower performance if the tests are measuring and students are in fact attempting to meet more challenging goals. We would also expect to see test performance to rise over time as instruction becomes more relevant to the standards the assessments are measuring.

California has a number of important tasks to consider. We believe that there is direct action that can be taken to support the best possible development of the assessment system, of the accountability structure it supports, and of California education. First and foremost, it is desirable to focus on the appropriateness and validity of the assessments planned to be in the system, as they are under development. In simple terms, any test is usually not exchangeable for any other. For example, as we have seen, the SAT-9 is a general achievement test and not fully aligned with the state's content and performance standards. It cannot simply be exchanged for a rigorous standards-based assessment system. Similarly, a high school graduation test presumably must make distinctions between those who are qualified and those who are not qualified, relative to explicit

standards, for a high school diploma, implying assessment items primarily focused on making that distinction. A college admission test, on the other hand, must make distinctions at a higher ability range, thus implying a different item focus and test-taker differentiation. A single test of limited duration probably cannot well serve both these purposes.

This is not to say, however, that these various measures themselves should not be consistent with the state's standards, albeit representing levels of performance and sophistication. Nor is it the case that a single test strategy for decision making is a good one or that all students necessarily should have to pass the same test. For example, a number of people have advocated using course-based exams for California's High School Exit Exam, as a direct way to align curriculum and testing and better assure that students have the opportunity to learn what is expected. Two examples of such course-based exams already exist – the Advanced Placement Exams, which were discussed earlier, and the Golden State Exams, a series of state-developed, academically rigorous, voluntary exams which are linked to specific high school courses. Both of these assessments probably represent a higher level of proficiency than can be expected from all high school students in the short run, but one might imagine a system where passing one or the other of these tests would count for the HSEE requirement, while still requiring students who were enrolled in other course to take the actual HSEE.

Assessments can be designed to serve various policy purposes, but there are times, such as we are seeing in other states, where policy imperatives have swamped technical capacity to deliver the assessments. Time frames have been insufficient to assure a quality assessment or to prepare the educational system and its students for a new set of expectations. The result is usually some form of retrenchment. In California, we would hope to avoid this cycle.

Recommendations

These recommendations will be brief and illustrative rather than exhaustive.

- Validity studies examining the extent to which California's assessment system is achieving intended purposes (school accountability, instructional improvement, consequences) must be undertaken immediately. These studies must address the impact of the assessment on various subgroups of students and schools.
- Evidence that the assessments detect instructional effects is needed.
- Efforts should be made to describe which standards are not measured by statewide programs (and are, therefore, appropriate for local scrutiny).
- Studies of side effects are needed, for example, to determine whether the developed form of accountability supports or interferes with the recruitment and retention of high-quality teachers for all children.
- Careful decisions need to be made about weighting of new measures as they become available for inclusion on the API. Modeling studies of potential volatile effects on API status by school and group will be required.
- Detailed studies of the relationship among all measures, those used for school report cards and the API, should be conducted to determine whether and how various out-

comes operate at cross purposes to one another.

- Smarter studies of alignment are necessary, including alignment of planned and enacted curriculum, resources, and preparation of teachers.
- Studies of the accuracy of the test are needed. In addition, strategies to help parents, the community, and the teaching force to understand the meaning of assessment–and what it does not mean–are essential.

Finally, well-designed assessments may tell us where we are and may communicate where we want to be. As we hope we have made clear, California's assessment and accountability system will need to continue to evolve to more fully achieve these goals and to support a standards-based system. We can all agree that the current status of student performance in California is insufficient, and that California schools need to improve. The real question is not where we are, but where we need to be and how we will get there. We should be looking for assessment results to show progress toward excellence—toward truly rigorous standards for student accomplishment—as well as progress toward equity. That is, we need to both raise our expectations for what children should know and be able to do, and assure that as we move forward, we do not continue to leave some students—indeed a growing proportion—behind. We need to move all children ahead and reduce the gap between our least and most economically advantaged students. We need to find better ways to assure that poor students and students who start school without full English proficiency have effective opportunities to learn and are given what they need to make steady progress.

Certainly dramatic changes will not come overnight. Improvement will not come easily or quickly if we keep to high standards. It will take more than accountability and clear communication of expectations to change practice at a significant, meaningful level. It will take important and coordinated changes in capacity; in teacher quality; in curriculum, instruction, and assessment; in parent and community involvement; and in district and local capacity to support change—to name just a few, as the other chapters in this volume make clear. It also will require that we align and focus educational resources, policies and practices at the state, district, and local levels to assure all students achieve and learn what they need to be successful citizens of the future. We look to California's assessment system to be able to provide sound guideposts on how we are doing.

Notes

1. National Commission on Excellence in Education. A Nation at risk: The imperative for educational reform. A report to the nation and the Secretary of Education. (Washington, DC: U.S. Government Printing Office, 1983).

2. See for example: Corbett, H. D., & Wilson, B. L. Testing, reform, and rebellion. (Norwood, NJ: Ablex Publishing, 1991); Dorr-Bremme, D. W., & Herman, J. L. Assessing student achievement: A profile of classroom practices (Los Angeles: UCLA Center for the Study of Evaluation, 1986); Kellaghan, T., & Madaus, G. F. "National testing: Lessons for America from Europe," Educational Leadership, 49.3(1991): 87-93; Koretz, D., Stecher, B., Klein, S., McCaffrey, D., & Deibert, E. "Can portfolios assess student performance and influence instruction?" in The 1991-92 Vermont experience, RAND (Santa Monica, CA: RAND, 1993; reprint from CSE Technical Report 371, Los Angeles, University of California, Center for Research on Evaluation, Standards, and Student Testing, December.); Koretz, D. M., Barron, S. I., Mitchell, K. J., & Stecher, B. M. Perceived effects of the Kentucky Instructional Results Information

System (KIRIS). MR-792.PCT/FF. (Santa Monica: RAND, 1996); Koretz, D. M., Mitchell, K. J., Barron, S. I., & Keith, S. Final report: Perceived effects of the Maryland School Performance Assessment Program (CSE Tech. Report 409). (Los Angeles: UCLA National Center for Research on Evaluation, Standards and Student Testing, 1996); McDonnell, L. M., & Choisser, C. Testing and teaching: Local implementation of new state assessments (CSE Tech. Rep. No. 442). (Los Angeles: University of California, National Center for Research on Evaluation, Standards, and Student Testing, 1997); Smith, M. L. Reforming schools by reforming assessment: Consequences of the Arizona Student Assessment Program (CSE Technical Report). (Los Angeles: UCLA Center for Research on Evaluation, Standards, and Student Testing (CRESST), 1996); Stecher, B. M., Barron, S., Kaganoff, T., & Goodwin, J. The effects of standards-based assessment on classroom practices: Results of the 1996-97 RAND survey of Kentucky teachers of mathematics and writing (CSE Tech. Rep. No. 482). (Los Angeles: University of California, National Center for Research on Evaluation, Standards, and Student Testing, 1998).

3. While most of these standardized tests were of the norm-referenced, multiple variety, some districts chose criterion-referenced tests that included some performance-oriented items. Selected tests had to meet technical quality criteria that were established by the state.

4. See NCEST report, 1992

5. IASA, 1994

6. See for example: Corbett, H. D., & Wilson, B. L. Testing, reform, and rebellion. (Norwood, NJ: Ablex Publishing, 1991); Dorr-Bremme, D. W., & Herman, J. L. Assessing student achievement: A profile of classroom practices (CSE Monograph Series in Evaluation, No. 11). (Los Angeles: UCLA Center for the Study of Evaluation, 1986); Kellaghan, T., & Madaus, G. F. "National testing: Lessons for America from Europe," Educational Leadership, 49.3(1991): 87-93. Shepard, L. Will national tests improve student learning? (CSE Technical Report 342). (Los Angeles: University of California, Center for Research on Evaluation, Standards, and Student Testing, 1991).

7. All students are required to take the test unless specifically exempted by an Individual Education Plan (IEP) or a written parent request.

8. Limited English Proficient (LEP) is the term used by California in its directives and reports. Many practitioners and researchers prefer the term English Language Learners (ELL) because of its accuracy and is more commonly found in the recent literature.

9. Abedi, J., Lord, C. & Hofstetter, C. "Impact of Selected Background Variables on Students' NAEP Math Performance." CSE Technical Report # 478, University of California. (Los Angeles: National Center for Research on Evaluation, Standards, and Student Testing, 1998).

10. The LEP designation applies to the full continuum of students from virtually no English proficiency to almost fully proficient. As students progress to the latter end of this continuum, scores from English language tests become more meaningful, though the point at which such meaning occurs is currently under investigation.

11. In addition to statewide measures, many districts have curriculum sensitive district assessments which are used to evaluate student achievement.

12. The Advanced Placement Program is conducted by the College Board in a total of 32 possible subjects.

13. Some believe that this drop may be an artifact of the norm group at this level, rather than representing an actual decrement in performance. Technical data that would more definitely determine the cause has not been available.

14. Measurement contrasts "observed" scores with "true" scores. "Observed" scores are the scores which students attain (and which are "observed") when students take a given test. Their true score is the score they would attain if the test were a perfect measure of their capability. We use "observed" scores to estimate what students "true" performance capability.

15. "How Accurate are the STAR National Percentile Rank Scores for Individual Students? – An Interpretive Guide" by David Rogosa is available to download at the CRESST Website, www.cse.ucla.edu.

16. See, for example, Shepard, L. A. "Inflated Test Score Gains: Is the Problem Old Norms or Teaching the Test?" Educational Measurement: Issues and Practice, 9 (1990): 5-22.

17. For reasons of space, only 3rd grade reading results are presented here. For analyses of other subjects, please see full technical report available through CRESST.

18. See CDE Stanford 9 Augmentation information at www.cde.ca.gov

19. The SAT-9 mathematics augmentation was controversial at grades 8-11. Only students taking particular courses were required to take the test – e.g., students enrolled in Algebra at 8th grade, and critics raised serious questions about the technical and content appropriateness of the items. Because the test is still under development, we are not reporting results for these grades.

20. Hearing by the Joint Senate and Assembly Education Committee, November 1999.

21. Observed relationships were similar across grades and subject areas. Only 3rd grade results are displayed here. See full technical report for other subjects and grade levels. Herman, J., Brown, R, and Baker, E. "Student Assessment and Student Achievement in the California Public School System." CSE Technical Report (forthcoming). (Los Angeles: University of California, National Center for Research on Evaluation, Standards, and Student Testing (CRESST)).

22. Observed relationships were similar across grades and subject areas. Only 3rd grade results are displayed here. See full technical report for other subjects and grade levels. Herman , J., Brown, R, and Baker, E. "Student Assessment and Student Achievement in the California Public School System." CSE Technical Report (forthcoming). (Los Angeles: University of California, National Center for Research on Evaluation, Standards, and Student Testing (CRESST)).

23. United States Department of Education, 1998.

24. Education Watch 1998: The Education Trust State and National Data Book, Volume 2 (Washington, DC: Education Trust, 1998).

25. Barton, P.E. and Coley, R.J. Growth In School: Achievement Gains from the Fourth to the Eighth Grade. (Princeton, NJ: Policy Information Center, ETS, 1998).

26. Data from California DOE Website; 1988-89 – 1998-99 state summary numbers; One year dropout rate is calculated by the sum of the number of dropouts from grades 9-12, divided by the enrollment in grades 9-12 and un-graded secondary.

27. Data from California DOE Website; 1988-89–1997-98 state summary numbers.

28. Data from California DOE Website www.cde.ca.gov; 1991-92–1998-99 state summary numbers for public schools; rate of passing exams per 100 juniors and seniors in public high schools. See also, The advanced placement program: California's 1997-98 experience. (Sacramento, CA: California State University Institute for Education Reform, 1999).

29. David Hoff, "Inglewood ACLU Lawsuit," Education Week, 4 August 1999, Volume 2, 13.

30. Education Watch 1998: The Education Trust State and National Data Book, Volume 2. (Washington, DC, Education Trust, 1998).

31. Data from California DOE Website www.cde.ca.gov; 1988-89–1997-98 state summary numbers for public schools; SAT verbal, SAT math, percent meeting SAT criterion (>=1000 on Verbal and Math sections), and percent of 12th graders taking the SAT. The percent of minority (American Indian + Black + Filipino + Hispanic + Pacific Islander/total enrollment) was calculated –and schools were designated as minority (>30%) or non-minority (<30%). The percent meeting the SAT criteria (>=1000) and percent taking the SAT are presented.

32. Data from University of California for 1997 and 1998. Summary scores were created as the percent of students not meeting the requirements after taking the Subject A English examination.

33. The UC system does not have a consistent measure of mathematics preparation. Each campus uses its system for assessment/placement.

34. Regression analysis on SAT Combined scores (1993-97). The amount of explained variance from regressing average test scores onto the school measures of percent of students receiving free lunch and percent Limited English Proficient is plotted.

35. Results were similar across subject areas. For reasons of space, we only present figures for reading here. See full CRESST technical report for other subject areas. Herman, J., Brown, R, and Baker, E. "Student Assessment and Student Achievement in the California Public School System." CSE Technical Report (forthcoming). (Los Angeles: University of California, National Center for Research on Evaluation, Standards, and Student Testing (CRESST)).

36. Adopted by the California State Department of Education at their July 1999 meeting.

37. See Joint Committee on Testing (AERA, APA, NCME), Standards for Educational and Psychological Testing. (Washington, DC, 1999).

Chapter 8

Connecting California's K-12 and Higher Education Systems: Challenges and Opportunities

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In recent years, policymakers have begun to realize that California's K-12 and higher education systems can no longer be approached as separate entities. Historically, there has been a disconnect because of funding strategies, mission and structure. The K-12 and higher education systems have been two separate spheres moving in different directions with no mechanisms in place to bring them together. This disconnect has led to all kinds of confusion and disjunctures between such policies as undergraduate admissions requirements, high school graduation exams, and university placement tests.

High school level exams such as the augmented STAR and the Golden State Exams[i] ask students to know and be able to demonstrate skills in areas that are different from those tested by college entrance and placement exams such as the SAT-I, SAT-II, and the California State University's mathematics and English placement exams. While there is a lot of overlap between some of the assessments and standards, there has not been enough purposeful alignment. In 1995, the California Education Round Table[ii] brought some of these issues to the fore by proposing that the state undertake several collaborative initiatives between the K-12 and higher education sectors. These included: 1) developing more agreement around the standards necessary for high school graduation, 2) clarifying the expected competencies for university admission, and 3) assessing student progress more uniformly to determine if standards have been met.[1] While much progress has been made within education sectors, more work between sectors must be done to tie K-12 and higher education together.

We propose that policymakers look toward developing deeper connections between the K-12 and higher education systems to create more coherence. This is particularly important in an environment in which over 70 percent of the state's graduating high school students will attend some kind of postsecondary education institution, and in a diverse state, with an ever-growing population, that is grappling with issues pertaining to equitable access to postsecondary education. Given the high skills nature of the labor market, and growing economic disparities in the state, it is imperative that the two education levels work together to increase student opportunities to enter and succeed in higher education. In this chapter, we assert that one way to strengthen the opportunity structure for all students is to develop greater alignment between the systems, and thereby

decrease the fragmentation and confusion surrounding high school curriculum requirements and undergraduate admission and placement policies.

In the following chapter, we begin by presenting recent changes that have occurred in K-12 education instructional policy. We then look at the current policy landscape in California higher education. Those two sections provide the context for the closing section in which we suggest ways in which policymakers can work to bring coherence to the entire K-16 system by connecting such policies as content standards, admission standards, and placement exams. While there are logical and historical reasons why the two systems are so separate—K-12 is a mass education system for minors, while higher education is a more elite and often more specialized form of education for adults – we propose that strengthening the alignment between the two systems would be beneficial for all stakeholders. Both K-12 and higher education stakeholders would benefit from having a more academically prepared student body. Also, students, parents, and K-12 educators would receive clearer signals regarding college preparation and expectations, while higher education stakeholders could use information from K-12 assessments as one factor in admissions decisions.

Changes and Challenges in California's K-12 Instructional Policy

Over the last twenty-five years, the state's K-12 education system has evolved from one largely controlled by local school districts to one that is more heavily controlled by centralized state decision-making. This transition occurred in a somewhat desultory manner, as the state developed no master plan, or road map, to guide policy toward a systemic end.[2] Both school governance and education policy remain fragmented and confused. As a consequence, the Senate Office of Research wrote that, "California's schools operate in an environment of significant instability that impacts their ability to plan and perform in a manner that maximizes student achievement. At the core of this instability is a convoluted, multi-layered system of governance in which roles and scopes of authority are not clearly defined."[3] One district superintendent, undoubtedly voicing the concerns of others, stated that California has a K-12 education system with no conceptual framework.[4]

In recent years, California has been working to reverse this situation, taking tentative but significant steps to putting a framework in place. The centerpiece of this campaign is the state's effort to develop an accountability system based on rigorous academic standards aligned to curriculum frameworks and assessments. The hope is that this accountability system will result in higher expectations and greater accountability for students and schools alike which will lead to improved student achievement. In such an environment, assessments will have higher stakes than ever before. Students could face not graduating from high school if they fail a proposed high school examination. Individual schools and their staffs may receive rewards for success and harsh penalties for failure.

Progress regarding the development and alignment of components within the accountability system has been made on several fronts.

Academic content standards were developed (however, performance standards that will be used to interpret student success toward meeting the content standards are still under discussion), followed by the development of the curricular frameworks and the augmentation of the Stanford 9 assessment used in the state's Standardized Testing and Reporting (STAR) assessment program. The Stanford 9, a basic skills test, has been augmented with rigorous testing items reflective of California's standards. However, the state board of education and policymakers are aware of the need to further align the assessment program with the standards. In any case, implementing the standards will not be an easy matter. To take just one example, the standards have been layered on top of an existing curriculum, and categorical programs are often tied to the curriculum. Thus, the curriculum and the funding stream often have little to no connection with today's standards. Consequently, there are two different incentive systems – one based on categoricals and one based on standards; these systems are often in conflict. As this chapter highlights, many reforms and policies have been layered on top of each other without a rational plan.

Curricular Standard-Setting

The California Education Round Table helped to lay the foundation for the development of the current standards with its 1995 report entitled, "Collaborative Initiatives to Improve Student Learning and Academic Performance, Kindergarten Through College." Its first recommendation was that the state needed to agree on standards for high school graduation and clarify expected competencies for university admission.[5] The standards commission authorized by Assembly Bill 265 developed content standards for all core curriculum areas in all grade levels. While the standards are not mandatory, the hope is that all districts will be held accountable for preparing their students for the state assessment; the results reflect students' achievement toward the standards. The state board has approved content standards in English, math, science, and social studies. These standards outline what students need to know and be able to do to be considered proficient in each subject area. The state has yet to adopt performance standards stating what level of achievement is expected of students for each of the content standards.[6]

Curriculum frameworks have been approved by the state board of education in English and mathematics, and are being developed in other subjects. The augmented STAR is aligned with the content standards, and current plans are for STAR to include Stanford 9 and the augmentation. The state board of education plans for the performance standards (showing whether students meet the content standards) to be aligned with the content standards (showing what students know and can do) and assessments.[7] Currently, the state's curriculum frameworks are being updated to be aligned with the state's content standards. There are not state adopted textbooks for high schools.[8]

Unless the curriculum, standards, and assessments are carefully aligned, there will be serious ramifications for the effectiveness of the proposed accountability system.[9] For example, if funding is tied to high academic performance, or if local educators face firing or school reconstitution if students perform poorly on the STAR, and if the standards, curriculum, and assessments are not aligned, the sys-

tem will unjustly penalize the schools. Although it is impossible to align every aspect of a state's K-12 system at one time, if students are being assessed on and held accountable for knowledge and skills that are not taught in the classroom.

The Need to Align Assessments with the Standards

As the assessment chapter describes, California's K-12 assessment environment has been tumultuous during the past decade. From 1972 until 1990, California's only testing program was the California Assessment Program (CAP), which focused on school site scores. Former Governor Deukmejian canceled this low stakes testing program in 1990. In 1992, the State Department of Education began work on California's first performance assessment, the California Learning Assessment System, or CLAS. CLAS was supposed to provide school scores initially and would eventually provide individual scores. But then Governor Wilson vetoed CLAS funding due to concerns about the test design, in addition to the lack of individual pupil data. The legislature passed legislation in 1997 authorizing a new testing system that would provide individual, school, and district assessment data in relation to statewide performance and academic standards. In response to the legislation, plans for the California Assessment of Academic Skills—another test that would provide only group scores—were announced. Again, Governor Wilson intervened and withheld funding, asking for a basic skills test that would provide individual scores. Thus, the Standardized Testing and Reporting Program (STAR) program was introduced through gubernatorial fiat in 1997 and was authorized by Senate Bill 376 in October 1997. While the assessment system was originally designed to provide primarily diagnostic information, a new high stakes accountability focus has been introduced, mandating that the test results determine whether students can graduate from high school or if school staff will be rewarded or sanctioned.[10]

All students in grades 2-11 in California's public schools are required to participate in the STAR program. The STAR program includes the Stanford 9, a nationally normed basic skills test; the Stanford 9 Augmentation, a set of test questions aligned to California's new content standards; and SABE 2, a Spanish language test taken by first year limited English speakers to assess content knowledge. The Department of Education hopes to develop a new test, the California Assessment of Applied Academic Skills (CAAAS), which would be similar to the Augmented Stanford 9 in its purpose, design, and type of scoring (criterion-referenced). Unlike the Augmented Stanford 9, in which all students respond to the same set of questions, students taking the CAAAS would respond to different sets of questions.[11] This is called a matrix test; it allows for more questions to be used. This creates a deeper assessment of general knowledge acquisition at the school level – not just at the individual student level.

Yet another assessment, a statewide high school exit examination in Reading, Writing, and mathematics, is scheduled to be adopted by the State Board of Education in 2000 and implemented for students in senior high school starting in the 2003-2004 academic year. One rationale behind the legislation creating this test is that, since localities are not mandated to adopt the state's content standards, they may be

left with local standards that may not be high enough. A high stakes statewide graduation exam would, de facto, ensure that every school aligns some of its standards with the state standards. Although it would seem logical to use the STAR test as a graduation exam, rather than to create a new test as the exit exam, the STAR is "a generic test of basic skills that does not necessarily have 'curricular validity' as yet…the basic test is still not assured to match the state standards, and therefore would not be 'aligned' to the standards based exit exam."[12] The debate surrounding the exit exam has been a contentious political issue – especially around the stakes of the exam. The statute is clear, though. In 2004, students will not be able to graduate from high school unless they pass the exam. Once the test is given in 2004, there will be an evaluation to determine whether there should be an additional, alternative, assessment.[13]

The results from the 1999 STAR assessment are discussed at length in the assessment chapter. A major issue for this chapter is that the current STAR test is only partially aligned with the state's content standards or the current curriculum. Consequently, the Stanford 9 is not testing the same knowledge and skills that students are being asked to learn in the content standards and statewide curriculum. A piece of the Star program, the augmented STAR, administered in 1999, is more aligned with California state standards.[14]

The California Department of Education also administers the Golden State Exams (GSE) – the state's end-of-course exams. The tests are offered in key subject areas in grades seven through eleven. The GSE program recognizes students for outstanding levels of achievement on each examination, culminating with the new Golden State Seal Merit Diploma established by AB 3488.[15] The UC System's BOARS (the Board of Admissions and Relations with Schools) committee members testified at a legislative hearing in Sacramento that it will be analyzing how well the GSE's predict grades for students in the UC system. After completing the research, the committee will consider whether it will use GSE scores to inform admissions decisions, as admissions criteria, or not at all. The GSEs, however, are not currently aligned with the content standard, the augmented STAR, or higher education admission and placement policies.

It is legislated that the proposed high school exit examination will be aligned, as far as content is concerned, with the state's academic content standards, and work is being done to align the Golden State exams with these standards.[16] The result of all of this testing is that high school students spend many hours preparing and taking K-12 tests that are irrelevant for higher education admission, and higher education-related exams that are irrelevant for high school graduation. An eleventh grader takes six hours of standardized tests in writing, social studies, mathematics, and reading comprehension. Those scores account for nothing when that student applies to a public institution of higher education in California.[17]

Making Students and Schools Accountable for Results

There is great momentum behind the development of a statewide accountability system, which is intended to drive the improvement of California's schools. Policymakers and the public have shown growing concern over much-

publicized problems such as low test scores, student apathy, and poor national rankings. The current accountability movement is concerned with outputs (i.e., performance on tests), not on inputs (i.e., student/teacher ratios, length of class periods) as was the case in the past.[18]

Senate Bill (SB) 1570 required the superintendent of schools to submit a plan for "positive and negative incentives" for the state board of education's approval by the last day of 1997.[19] SB 1x and SB 2x address strict accountability measures, including the establishment of a four-part $192.3 million umbrella entitled the Public Performance Accountability Program. The two pieces of legislation include:

- An Academic Performance Index (API) that will be the basis for ranking all public schools' performance;
- Intervention for underperforming schools, based on the API, that will include financial assistance and sanction, including the possible reassignment of school personnel;
- $125 million for schools that meet and/or exceed their performance targets; and
- the development and implementation of a state high school exit examination.[20]

In addition, Assembly Bill 1626 requires every school district to approve a policy regarding the promotion and retention of students between grade levels and to ensure that students are identified who "should be retained or are at risk of being retained in their current grade level."[21] Senate Bill 1370 increased the funds available to districts for summer school instructional programs, or remedial programs in order to deal with the probable influx of students needing remedial assistance.[22]

The California Public Schools Accountability Act (PSAA), part of Governor Davis's school reform program, went into effect in the fall of 1999. It is designed to set targets for improving all schools and for forcing low-performing schools to shape up. The main measure of success or failure will be results from the STAR assessment. The first API results that were released used *only* STAR results, raising an outcry from educators that one measure is not enough for an accountability program. In the future, rates of attendance, teacher absenteeism, and graduation rates will also be used in the performance indices. Every school that falls below the median is eligible for a $50,000 state grant to hire a consultant in addition to funds to implement reforms. Schools that do not improve within three years will be subject to sanctions, such as the reassignment of teachers, the removal of principals, or take-over by the state. All of California's schools must improve five percent per year. In addition, failing schools must identify the underlying causes of low student performance and figure out how to rectify them.[23]

California is behind most other states in developing and implementing an accountability system. At least 32 states and 34 large city school districts have accountability systems based, in part, on test scores. Many educators are concerned that the system is moving too quickly given its fragmented nature – and that holding schools accountable for success using a measure that is not entirely aligned with the content standards is poor policy. At the end of this chapter, we explore issues related to the development of a K-16 accountability system.

Such an accountability system would tie together data from both systems.

Working Toward a K-12 Master Plan

Policymakers and legislators are increasingly concerned about the state's lack of a comprehensive, coherent vision for K-12 reform.[24] Responding to this concern, the Legislative Analyst's Office has proposed that the state develop a Master Plan for K-12 education (see www.lao.ca.gov/). The proposed plan would provide a conceptual framework for K-12 education, local control over the implementation of standards, and local fiscal control. The state would provide schools and the public with funding, flexibility, and information.[25] To address the concerns about the lack of a coherent vision for K-12 education in the state, the Joint Committee to Develop a Master Plan for K-12 and Higher Education was been formed.[26]

Absent a plan, however, many of the current reforms, standards, and assessments will be seen as ad hoc, with each major policymaker advocating the use of his or her favorites. It remains to be seen if all the pieces of the California education policy puzzle will be put together correctly, or if they will evolve into a misaligned assortment of policies. Currently, the layers of categorical programs, assessments, standards, curriculum frameworks, and accountability measures —some aligned and some not—create a confusing environment through which students must navigate in order to graduate from high school and attend institutions of higher education. The picture becomes even more confusing when higher education standards and assessments are added to the mix.

Higher Education in California: Negotiating the Maze

Context: The Master Plan and Current Policy Environment

The state's higher education institutions have well-articulated agreements between them regarding their admission policies. In 1960, California's Master Plan for Higher Education established student eligibility criteria for the three segments—the community colleges, the California State University System (CSU), and the University of California (UC). The criteria are as follows:

- The community colleges, 106 in total, are to accept all applicants eighteen and older who can benefit from attending.
- CSU is to draw from the top one-third of high school graduates and all qualified transfer students from the community colleges.
- UC is to draw from the top 12.5 percent of high school graduates and accept all transfer students from the community colleges.[27]

Since the passage of Proposition 209 on November 5, 1996, the state has strengthened its efforts to ensure that diverse groups of students will be prepared to enter and succeed in its public colleges and universities. Proposition 209 bars the use of "preferential treatment" in public employment, public education, or public contracting.[28] The proposition mandated an end to the use of affirmative action in UC's and CSU's admission policies and procedures. This change highlighted the need to provide equal, high quality K-12 educational opportunities to all students—including clear signals about what students need to know and be able to do to enter higher education—in order to maintain

diverse student bodies in the state's public university systems. In response to Proposition 209, Governor Davis proposed the Top Four Percent rule, which will allow students in the top four percent of their graduating high school class to gain admission to the UC System. The UC Board of Regents approved the proposal on March 19, 1999. The UC System estimates that it will increase the pool of eligible students by 3,600, or 1.4 percent.[29]

The Governor has also increased the state's commitment to provide financial aid for college students. The Governor's 2000 budget, released on January 10, 2000, includes a $26.5 million expansion of the Cal Grant Program. Slightly more than half ($14.1 million) would be used to add more than 7,700 new Cal Grant A, B, and C awards for financially needy students; $2.4 million would be used to increase the maximum awards for students attending independent institutions. The Governor proposes to increase the budget for merit aid as well. In addition, 1,000 new awards are authorized for the Assumption Program of Loans for Education, a program that forgives student loans for individuals who become teachers in schools districts facing a shortage of qualified teachers.[30] These efforts show a commitment to expand programs that benefit more than the traditional elite pool of prospective college students.

Other measures have been taken to try to offset the effects of Proposition 209. The state has dramatically expanded funding for its pre-college outreach programs in the wake of Proposition 209; however, the evaluation component of the many outreach programs is lagging. The UC System has begun a large scale evaluation of its outreach programs and, when fully developed, it will have a comprehensive database of student-level data for students who participate in UC's outreach programs.

The expansion in outreach-related services has come in every direction—school improvement, after school programs, mentoring, tutoring, teacher preparation—but little is known about which strategies are effective and which are not. The 1998-1999 state budget provided an extra $33.5 million in state support, plus $5 million from the UC System, for outreach. The budget required a $31 million match from the schools; therefore, the total amount of new money was $69.5 million. The UC spent approximately $137 million on outreach efforts in 1998-1999; this was more than double the $65 million spent in the previous year. The additional money expanded 1) partnerships with schools that focuses on improving long-term student performance ($15 million); 2) student-centered academic programs such as Math, Engineering, Science Achievement (MESA), Puente, and Early Academic Outreach Program (EAOP, $15 million); 3) services that promote the community college transfer function; 4) programs in the Central Valley; 5) outreach to students, families, teachers, and counselors; and 6) UC's evaluation of the effectiveness of its outreach efforts.[31iii] Also, the UC Office of the President is administering a $25 million federal GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs) grant to encourage and prepare more middle schools students for college. In addition to this grant, many K-12 districts and higher education institutions in the state received one-time GEAR UP partnership grants. Finally, the UC System is requesting a $6 million increase in its proposed 2000-2001 budget in order to expand outreach initiatives.[32]

From the CSU System perspective, the Trustees adopted the Cornerstone Implementation Plan in January of 1998. Principle 5 of the plan states that, "The California State University will meet the need for undergraduate education in California through increasing outreach efforts and transfer, retention, and graduation rates, and providing students a variety of pathways that may reduce the time needed to complete degrees."

In January 1996, the CSU Trustees passed a policy to reduce the need for remediation in English and mathematics. The policy calls for the CSU to work with public schools to strengthen the preparation of high school graduates and reduce the need for remediation for incoming students by 10 percent in 2001 and a total of no more than 10 percent in both subjects by 2007. The policy does not call for the elimination of remedial studies at CSU campuses. Strategies to be used include: strengthening teacher preparation, setting clear standards and assessing performance to ensure that students meet high school graduation and university admission standards, communicating university competence standards to K-12 stakeholders, informing high schools and community colleges about first year student performance at the CSU, developing early intervention programs for high school students, using CSU students to tutor and mentor K-12 students, and providing early assessment after university admission and before enrollment.[33]

A priority for the campuses it to continue and expand their programs to reach traditionally underrepresented student groups.[34] An outreach effort which has impacted the CSU's approach regarding working with high schools is California Academic Partnership Program (CAPP), which was established by the legislature in 1984. CAPP promotes intersegmental partnerships by awarding grants to higher education institutions, public schools, and businesses to improve academic programs and increase the number of students who are prepared for college. CAPP focuses on identifying strategies and activities that improve college preparatory curriculum and strengthening teachers' capacities to help all students learn the curriculum.[35]

Also, the CSU system has identified approximately 240 high schools that traditionally send the most students to the CSU. The system has allocated approximately 10 million dollars to its campuses to work with those high schools and focus on faculty-to-faculty interaction. A goal is to have faculty from each system interact with each other about what they teach and what their expectations are in order to reduce the need for remediation.[36]

Other current statewide K-16 efforts include the following:

- The California Subject Matter Projects (CSMP), a professional development network funded by the legislature, link UC campuses, CSU campuses, Independent Colleges, County Education Offices, Community Colleges, and high schools. The CSMPs develop teachers' content knowledge and expand their teaching strategies, create a pool of expert teachers to conduct CSMP programs, and bring universities and schools together. The CSMPs started as the Bay Area Writing Project, but now include mathematics, art, foreign language, literature, and science. CSMPs serve over 500 California school district where 87 percent of the state's teachers and 90 percent of the students are

located. This effort has historically been a major commitment on behalf of the state.[37]

- SB 1697 established the College Preparatory Partnership Program as a $13 million grant program for high schools to contract with providers for "the provision of preparation courses for college admissions tests for eligible high school pupils." Priority for inclusion in the grant program will be given to schools with student populations that have low college attendance, high numbers of low-income students, and demonstrated efforts to improve their college preparatory curriculum and college attendance rates.[38] This bill does not, however, challenge the misaligned system. Rather, it is an attempt to work within the status quo to prepare students for the current standardized college entrance exams.

Programs such as those mentioned above assist students in a wide variety of ways – from helping students navigate through undergraduate application processes, to academic tutoring and test preparation. Rarely, though, do outreach programs prepare students to take higher education placement exams.

A Proliferation of Unaligned Placement Exams

Each college and university system, and sometimes each individual campus, develops or adopts placement exams to determine which core courses students should take during their first year. These exams are not well-publicized to high school students and their parents or to teachers, nor are they aligned with current K-12 standards and assessments; this creates a situation in which it is difficult for students to prepare adequately for the placement exams.

The placement tests given by most institutions of higher education are administered after students are already accepted by a particular campus, so students have no way to prepare specifically for the tests. Students who fail placement exams must take lower level courses that do not count for graduation and many are not informed of the tests prior to matriculation into the university.[39] Below are descriptions of placement exams administered by the California Community College System, the California State University System, and the University of California System.

- **Community College System.** Community college leaders are concerned about the inability of many of their students to complete credit level or transfer level work when they enter a community college. Remedial rates vary greatly depending on the high school the student attended. For example, approximately one-third of the students who graduated from higher performing (on standardized tests) high schools in the Santa Barbara area and matriculated into Santa Barbara community college could not do credit level mathematics work; that number for lower performing high schools is approximately two-thirds.[40] Community colleges in California administer approximately fifty-eight different placement tests; there are approximately 678 combinations of exams given each year by the campuses. This does not include exams developed by individual faculty members. The list does include many tests developed by ACT, the UC and CSU systems and campuses, and the College Board.[41]
- **CSU System.** The CSU System has two placement exams that are used by every uni-

versity in the system: the Entry Level Mathematics Examination (ELM) and the English Placement Test (EPT). The tests were designed to assess the skills of entering CSU students in mathematics and in reading and writing, respectively, so that students can be directed to the appropriate courses or programs to help them attain the necessary skills. All entering undergraduates must take both exams. The tests are not used in the admission process. Campuses and individual faculty members also develop and use their own placement exams in core subject areas. In 1998, the CSU system reported that a record 47 percent of its freshmen had to take remedial English; 54 percent enrolled in remedial mathematics.[42]

- **UC System.** The UC system administers the Subject A English examination. It does not have a mathematics placement exam. Campuses and individual faculty members also develop and use their own placement exams in core subject areas.

In sum, each system, and often each campus, has its own placement criteria, creating a confusing and misaligned set of policies.

Admission Requirements

University of California System. UC System standards have long had an affect on the K-12 system. In a previous report, PACE researchers wrote that, "Historically, high schools have been attentive to changes in admission requirements of the postsecondary institutions and other higher education-initiated curricular directions. . . .The University of California's entrance requirements have long been viewed as a primary determinant of high school curriculum."[43] The UC System and CSU joined forces in 1999 to align their required course sequences; the new requirements are entitled "a-g" and include Visual and Performing arts. The "a-g" requirements, listed below, have historically driven the college preparatory curricula in the state's high schools. The intent of the subject area requirements is to assure that students can participate fully in the first year program at the University in a wide variety of fields.[44]

In order to gain entry into an institution in the UC System, applicants must 1) complete the required "a-g" courses sequence, 2) meet the Scholarship Requirement, and 3) meet the Examination Requirement. The Scholarship Requirement specifies the grade point average (through the use of an Eligibility Index) that applicants must earn in the "a-g" courses to be eligible for admission. The Examination Requirement stipulates that applicants must submit SAT-I or ACT scores and SAT-II scores.48 Three SAT-II tests are required by the UC institutions: 1) Writing, 2) mathematics, and 3) a subject in an area appropriate to a student's chosen area of study in college (chosen from English Literature, Foreign Language, Science, or Social Studies).

There has been a recent increase in the percentage of California high school students taking a rigorous sequence of courses. In 1998, over 36 percent of high school graduates have finished the "a-f" requirements (as they were previously called) for the UC System—an increase of over 3 percentage points since 1996. Also in 1998, over three times as many California students took and passed Advanced Placement exams than in 1984-1985. Over 13 percent of all juniors and seniors passed the exams, compared with just over 9 percent nationally.[46] A major problem exists, however; there is not enough

Course	Years
History/Social Science	2 years, including 1 year of US history or .5 year of US history and .5 year of civics or American government; and 1 year of world history, cultures, and geography.
English	4 years of college preparatory English that includes frequent and regular writing, and reading of classic and modern literature. Not more than 2 semesters of 9th grade English can be used to meet this requirement.
Mathematics	3 years required, 4 years recommended, of college preparatory mathematics that includes the topics covered in elementary and advanced algebra and 2 and 3 dimensional geometry. Math courses taken in grades 7 and 8 may be used to fulfill part of this requirement if your high school accepts them as equivalent to its own courses.
Laboratory Science	2 years required, 3 recommended. 2 years of laboratory science providing fundamental knowledge in at least 2 of these 3 areas: biology, chemistry, and physics. Lab courses in earth/space sciences are acceptable if they have as prerequisite or provide basic knowledge in biology, chemistry, or physics. Not more than 1 year of 9th grade laboratory science can be used to meet this requirement.
Language Other Than English	2 years required, 3 recommended. Courses should emphasize speaking and understanding and include instruction in grammar, vocabulary, reading, and composition.
College Preparatory Electives	2 years. Courses must be chosen from the following areas: visual and performing arts, history, social science, English, advanced math, laboratory science, and language other than English.
Visual and Performing Arts	1 year. Courses must be chosen from the following areas: art dance, drama/theatre, or music.

Table 1. A-G Requirements

consistency in terms of what is offered in a-g courses across the state. The UC System certifies that a course meets the necessary criteria by ensuring that the course title meets its standards. If substantial changes are made, the UC System must be notified. Content of the courses varies and, over time, does not always match the titles of the course.[47]

Community College System. The California Community Colleges must admit any California resident, and may admit any person, who is at least eighteen years old and capable of profiting from the instruction offered. The community colleges may also admit a nonresident who has a high school diploma or the equivalent.[48]

California State University System. Freshmen are admitted based on courses taken in high school and their ranking on the eligibility index, a combination of high school grades

and either the SAT or ACT composite scores. To qualify for admission a student must satisfy the following criteria: 1) be a high school graduate, 2) have completed the course subject requirements with a grade of C or better, 3) and earned a qualifying ranking on the eligibility index. Again, the course subject requirements, the a-g requirements, are the same as those required by the UC System.

California residents with a school grade point average of 3.0 or better are not required to submit test scores, but are encouraged to do so. The SAT-I, like the CSU math placement exam, covers algebra and geometry; however, the SAT-I also covers topics not stressed in the CSU exam such as ratios and data interpretations. A score above 550 on the mathematics section of the SAT exempts students from taking the CSU's mathematics placement exam.

The SAT and Advanced Placement

Results from the traditional measure of college preparation, the SAT[iv], are encouraging[v]. California's state standards and assessments, however, are not aligned with the SAT; SAT results are not indicators of students' overall academic performance in school. SAT results are intended to measure students' readiness for college-level academic work. In 1997, 47 percent of California's high school seniors took the SAT, four percentage points higher than the national average. Percentage-wise, substantially more California students were not native English speakers and were from economically disadvantaged families. Nevertheless, average scores increased to the highest point since 1973-1974: 497 in the verbal section (the national score was 505) and 516 in math (the national score was 512).[49] The assessment chapter provides more detailed information and data regarding the SAT.

Although causality can not be proven with these data, the table below shows that the more academic courses a student completes, the higher the SAT scores.[50]

Currently, because there are three required SAT-II portions and only two SAT-I portions, the SAT-II factors more heavily for campuses that choose to use all three SAT-II exams in calculating their academic index. It is unknown what percentage of non-honors or non-AP track students are aware of, and prepare for, the SAT-II. If the SAT-II is not a commonly known assessment, it could be a barrier for students

Academic Courses Taken	California SAT Math Scores
20-plus	567
19-19.5	525
18-18.5	503
17-17.5	481
16-16.5	472
15-15.5	470
Less than 15	456
Academic Courses Taken	**California SAT Verbal Scores**
20-plus	550
19-19.5	508
18-18.5	488
17-17.5	468
16-16.5	458
15-15.5	452
Less than 15	434

Table 2. Number of Academic Courses Completed and SAT Score, 1998

with regard to becoming eligible for admission to the UC System.

In 1997, the UC Office of the President conducted a study to investigate the likely result of removing the SAT-I as an admission criterion. The study considered how eliminating the use of the SAT-I would affect UC eligibility rates. It found that such an action would produce small changes in the eligibility of African Americans (from 2.8 percent to 2.3 percent), Asian Americans (from 30 percent to 29 percent), and Latinos (from 3.8 percent to 4.0 percent); the largest change would be an increase in the eligibility rate for whites (from 12.7 percent to 14.8 percent). A California Postsecondary Education Commission report on eligibility found that only 2.5 percent of California's public high school graduates are ineligible to attend a UC campus solely on the basis on inadequate test scores. Approximately 63 percent of graduates were ineligible because they had major course omissions or grade deficiencies, or had attended a high school that has a college preparation program that is approved by the UC system.[51]

While many high schools offer honors courses, they can vary in quality depending on the pedagogy and curriculum. The Advanced Placement (AP) program, sponsored by the College Board, included college preparation courses and tests gauged to an external standard. AP exams are given to high school students who take AP courses in core subject areas. A passing grade on an exam is accepted by many colleges and universities for college credit. There is little consistency, though, in the system. Students can score well on an AP exam, but depending on the higher education institution, credit can be denied. High AP scores on the English and mathematics exams also exempt students from taking those placement exams at UC and CSU institutions. The UC System also allows extra weighting of grades earned in AP courses completed during a student's sophomore and junior years in high school. California's 1999 Advanced Placement exam passing rate of 14.8 (per 100 test-takers) is above the national average of 9.4.[52]

Bringing it All Together: K-16 Policy Alignment

The issues of articulation and of connecting K-12 and higher education standards affect a large proportion of California's college age population. A greater percentage of California students are attending the state's two and four-year institutions of higher education than ever before. In 1996, over 66 percent of California high school seniors enrolled in a postsecondary program within two years of graduation, and that is expected to grow in the 21st century.[53]

Two major issues that arise when K-16 alignment discussions are held is that K-12 and higher education have different missions and not all students who graduate from K-12 enter higher education institutions. But aligning policies between the two systems would not change the mission of either entity, nor leave out the noncollege-bound. Rather, if all high school students are held to high standards that are aligned with college entrance requirements, it could increase standards for all students and could help ensure that all students receive clear messages about what they need to know and be able to do to enter college. K-16 reform as described in this chapter could provide previ-

ously noncollege bound students with the information and opportunity necessary to make the choice to pursue postsecondary education. It could also address equity concerns in the wake of Proposition 209 by ensuring that every high school senior's curriculum relates to college or university entrance standards. This is crucial, given that approximately 70 percent of all high school graduate will attend some form of postsecondary education. This, in addition to a well-conceived and implemented K-16 data and accountability system, could cut down on the need for remedial or developmental education. Approximately 50 percent of all college and university students in the state enroll in some form of remedial education during the course of their college-going years.

Challenges

California is striving to align standards and assessments within the K-12 policy arena. Another challenge is to link K-12 and higher education policies. The lack of compatibility between the two systems is evident in two ways: 1) policy-making bodies in the two education sectors have minimal interaction and opportunities to collaborate, and 2) assessments and other policies are not aligned across the K-16 system in terms of what they are asking students to know and be able to do. None of the state's public higher education admission and placement exams is aligned with the California State Board of Education's curriculum frameworks or the augmented STAR. Compounding this is the fact that the various tests high school students take all have different purposes, including preparation for college, freshman placement, prediction of university performance, determining trends in performance on statewide K-12 standards, and comparing state test results to national norms. While K-12 and higher education have different purposes—and, consequently, the assessments will differ—we argue here that the process can be streamlined, data can be made more useful for all stakeholders, and that all stakeholders should be brought to the table to discuss these issues.

It remains to be seen whether the STAR assessment system for eleventh graders and college entrance level policies will be aligned in order to send clear messages about what students need to know and be able to do. This challenge will, perhaps, be more difficult than the one facing the K-12 system since the success of the effort will depend not only on the success of the alignment efforts in the K-12 system, but on clear articulation of what students need to know and do to enter college at all levels of the higher education system, agreement among K-16 stakeholders, and an institutional center from which reforms can be made and implemented. Currently, many of the reforms in one system are made in isolation from the other system, although recent discussions of test consolidation have moved toward a K-16 inclusive reform environment.

Thus, from an assessment perspective, much work remains. The table below provides brief snapshot data regarding the major assessments and standards utilized in California during the transition between high school and college.

The Education Trust, a national nonprofit focused on K-16 reform, recommends that states take the following actions:

- Make sure that the content of all assessments used at the high school exit level and college entrance level are made public and shared widely.

- All high school students should be required to complete a rigorous, college preparatory, academic core.
- Redundancies and mixed messages in assessment at the juncture of high school and college must be eliminated.
- Reward high performing students by enabling them to begin college work early; provide extra time and help for high school students who are struggling.[54]

The California Education Roundtable took a slightly different perspective than did the

Test or Standard	Purpose
	K-12 Assessments and Standards
STAR	Measures knowledge of broad content areas; allows for district and national comparisons.
CA Augmented STAR	Augmented items are developed to test performance against CA standards.
STAR SABE/2	Spanish language test given to students to gauge command of content in primary language.
CAAAS Matrix	Proposed as a measure of progress toward standards. Matrix sample would assess a broad array of content items.
Golden State Exams	End-of-course exams. Student recognition for high performance and seal of merit.
Exit Exam	Will be required to pass in order to earn high school diploma.
Tests of General Educational Development	Provides an alternative way to complete high school.
California High School Proficiency Exam	Proficiency test that allows students to graduate early from high school.
State Content Standards	Outlines what students need to know and be able to do at each grade level.
High School Graduation Standards	Defines what students are expected to learn by the time they graduate from high school.
PSAT	Preparation for SAT-I; selection of National Merit Scholars
PLAN	Preparation for ACT; measurement of student knowledge.
NAEP[vi]	National exam that allows for comparison of performance across states.
Advanced Placement	High Scores on individual subject tests exempt students from certain baccalaureate courses.

Table 3. K-16 Assessments and Standards

	Higher Education Assessments
SAT	To predict readiness for college-level work. Used for college admission. Alternative to ACT.
ACT	Measures knowledge of subjects areas and predictor of college success. Used for college admission. Alternative to SAT-I.
SAT-II[vii]	Measure knowledge of subject areas; used for college placement.
Approximately 58 different Community College placement exams	Places entering students into appropriate courses.
UC English Language Arts placement test	Places entering students into appropriate courses.
CSU Entry Level English Placement Test (EPT)	Places entering students into appropriate courses.
CSU Entry Level Math Exam (ELM)	Places entering students into appropriate courses.

Table 3 continued. K-16 Assessments and Standards

Education Trust when it analyzed the state's K-16 policy environment and outlined the following problems and disjunctures:

- For many seniors, too little is demanded of them academically.
- The options for acceleration to college and the opportunities to sample college-level work are not equitably available for high school seniors.
- The senior year is not effectively employed to assist students in catching up and/or becoming fully prepared for college-level work or for the workforce.
- There could be more higher education courses offered at high school .
- By sending out early acceptance notification, colleges foster a slacking off of academic effort on the part of many seniors.
- The high school senior who is uncertain of his or her academic options has few opportunities to meet individually with an academic counselor.
- High school seniors are often unaware of their level of preparedness for college-level work, particularly in mathematics and English language arts.

The Roundtable recommends coordinating the multiple K-16 standards-development efforts.[55] Another crucial issue that is rarely addressed is that of the different teaching, learning, and assessment styles used in the K-12 system as compared to the higher education systems. Could one contributing factor to the need for remedial or developmental education be that students are underprepared for lecture styles and multiple choice exams utilized in many colleges and universities?

We propose that policymakers address the following questions in order to determine the depth of the disjunctures between the K-12 and higher education systems in the state. While we can address some of these issues, others need to be examined in close detail by educators, policymakers, and researchers.

How do the state's academic content standards and graduation requirements compare to the content of beginning level courses at the state's colleges and universities? If there is not a continuum of learning when a student leaves high school and enters higher education, that student can suffer, academically, in college. While we do not have data to address this question specifically, we can state that there is a gap between what is required to graduate from high school and what is required to become eligible for admission to the UC and CSU systems. While the curricular requirements have been well-aligned between the UC and CSU systems, they are not aligned with high school practices across the state. In 1997, the State Department of Education surveyed nearly 300 high schools regarding the nature of their high school programs. It reported that

> California high schools are expecting to increase their high school graduation requirements in the areas of requiring 2 years of math, including algebra and geometry. Currently on 54 percent of high schools have this requirement, with 70 percent indicating that they will have such a requirement for the class of 2004. Currently about 80 percent of high schools require 4 years of English and 85 percent require 2 years of laboratory science. If all students are to pass a rigorous exit exam, the percent of students taking these courses, whether required as graduation criteria or not, may need to be increased.[56]

Thus, high school graduation requirements often fall short of higher education admission requirements. This has implications if, for example, the minimum high school graduation standards do not permit students to do credit level work in higher education, or if high schools' curricular offerings are gauged to low level graduation standards. Also, students are not aware of this disconnect, they might not be preparing adequately for higher education.

Is the STAR program assessment, including the augmented test, asking students to know and be able to do the same knowledge and skills that are required by UC and CSU admission and placement policies? How do the individual institutional placement exams relate to each other in terms of content, and to the STAR assessment? More specific details of differences between the *K-12 and post-secondary* assessments currently administered are outlined in a forthcoming study by RAND Corporation researchers. Researchers analyzed the alignment of mathematics content and format between the SAT-I, ACT, SAT-II, augmented STAR, Golden State Exams (High School mathematics, First year Algebra, and Geometry), and the CSU mathematics placement exam. Fewer than ten percent of the SAT-I and augmented STAR items required a memorized formula, in contrast to 25 percent of the GSE Geometry problems. Whereas the GSE Algebra and SAT-II mathematics level IIC assessments made little use of figures and tables, the augmented STAR and GSE Geometry exams included many illustrations. No more than 25 percent of the items found on California's university admission and placement assessments were seen as "authentic" or applied, as compared to 58 percent of the augmented STAR items. For college entrance exams such as the SAT-II and ACT, relatively

greater emphasis was given to Geometry and trigonometry, whereas trigonometry was largely absent from the CSU, SAT-I and augmented STAR exams.64 As this brief discussion illustrates, the list of knowledge and skills required by the various exams is diverse, extensive, and confusing. While some content and structural misalignments may be necessary due to legitimate differences between the tests, California students are subjected to a babel of tests and standards that could be aligned better. In addition, unless the curriculum, standards, and assessments are carefully aligned across the K-16 system, the effectiveness of the proposed accountability system could be undermined.[58]

Should the statewide accountability program currently being developed hold high schools accountable for offering college preparatory work including AP courses? Should it hold higher education institutions accountable for graduating their students? As discussed earlier, the only data currently included in the accountability index are the STAR assessment results, although there are plans to increase the number of indicators and create a more comprehensive accountability system.

Can state education agencies link their databases in order to assess needs throughout the K-16 continuum? Can researchers and policymakers use the data to understand any current inequalities in terms of who enters and who graduates from higher education institutions in the state? Can issues such as college preparation be addressed by tracking student success in higher education by district or high school? It is impossible to address needs when there is not a comprehensive, linked, K-16 data system in the state. It is too soon to tell if the state's education databases will be linked. In 1999, AB 1570, sponsored by Villaraigosa, was chaptered. It requires the California Postsecondary Education Commission, in developing a comprehensive student database, to, "ensure that the database supports longitudinal studies of individual students as they move through the state's educational segments, that it provides for the interactive use of data, and that it provides each of the educational segments access to the data…"[59] A data exchange agreement has been formalized between the UC, CSU, and Community College systems to track UC outreach program participants into public higher education.67 This is a start, but, in order to address needs statewide for all students, more work needs to be done create a K-16 data system.

Do the state's schools have a sufficient number of counselors whose main role is to advise students about college options? Do all students have early, repeated, access to college preparation information? Counselors in every state, and California is no exception, are overwhelmed by the variety of responsibilities they must fulfill every day. Counselors face a long list of roles, including scheduling classes, administering tests, and assisting students with emotional and psychological issues. Often, they do not have time to do one-on-one college counseling. California has one of the worst counselor-to-student ratio in the country.

Are there university outreach programs that are connected with local schools and districts? Are they connected with national, state, and local outreach programs? One of the challenges of the outreach environment in California is the proliferation of unconnected outreach programs. There is not a clear sense of the level of overlap, or the gaps, in types of

services or populations served. The joining of MESA, Puente, and EAOP is a good start. Additional research needs to be done in this area, in additional to more evaluative work.

Are there articulation agreements between public universities, community colleges, and high schools? California has strong articulation agreements between its higher education segments. What is lacking is a K-16 data system that can track student progress through the segments.

Is there an institutional center or mechanism that will allow K-12 and higher education stakeholders to work together and overcome fragmentation concerning such areas as policy alignment, faculty interaction, teacher training and pedagogical issues, and K-16 information systems? No one is held accountable for K-16 reform in California. There is no entity charged with developing and implementing K-16 reform. Many of these issues, such as equitable access to college preparatory courses and to higher education in general are politically charged issues that can quickly turn into turf battles. A group needs to be identified that will have the authority to represent all stakeholders. Groups such as the Education Roundtable and the Intersegmental Committee of the Academic Senates are not appropriate bodies since they do not include a representative from the Governor's office, or from the community at large. Until such a group is put together, many of these reforms will be difficult to tackle.

Opportunities for Change

Unlike many other states, California has several intersegmental groups that can begin to work together across sectors. Such groups as the Education Roundtable, the California Postsecondary Education Commission, the Intersegmental Committee of the Academic Senates of the UCs, CSUs, and community colleges are all in good positions to work together with other K-16 stakeholders to create a more aligned system. The K-16 policy environment is slowly evolving into a more coherent whole, rather than disparate pieces.

It will be crucial to bring K-12 and higher education stakeholders together, including Governor Davis's key education aides, to create a more cohesive system of education in California. California educators and policymakers must create an institutional center for these reforms. If improved alignment is to occur, the K-12 and higher education systems need to determine whether one system will adopt the others' assessments; whether yet another assessment will be adopted; if a separate K-12 and higher education assessment will be acceptable, but data will be shared and utilized across systems; or if the status quo will remain.[61] Curricular alignment needs to be addressed as well. We applaud California's educators, researchers, and policymakers for the efforts made to date, and urge them to address the issues and questions raised in this chapter. This work must be completed while balancing all the other facets of education, especially 1) creating incentives for all K-16 stakeholders to take an active role in K-16 reform, 2) ensuring that changes improve opportunities for all students to enter and graduate from higher education, and 3)making sure that capacity issues are addressed. This is a tall order to fill, but if California succeeds it could become a national model for K-16 reform.

Notes

i. The augmented STAR is the statewide K-12 assessment that is aligned with the state's content standards. The Golden State exams are the state's end of course exams that are not aligned with the content standards.

ii. The Round Table is an association of the chiefs of the systems (or segments) of education in California. Its members include the State Superintendent of Public Instruction, the President of the University of California, the Chancellor of the California State University, the Chancellor of the California Community Colleges, the President of the Association of Independent Colleges and Universities, and the Executive Director of the California Postsecondary Education Commission. The Round Table focuses on issues affecting all segments of education. Its agenda is implemented through working committees composed of staff, faculty and students managed by its operating arm, the Intersegmental Coordinating Committee.

iii. EAOP, MESA, and Puente have joined forces to increase their efforts in the development of individual academic plans and preparation of students for college tests. The new entity is called the EMP (Early Mesa Puente) Outreach Collaborative.

iv. Most students in California who proceed to a public university in the state take the SAT, rather than the ACT.

v. The SAT, administered by the College Board, is used by institutions of higher education as an indicator of students' readiness to take college-level work. This is a different exam than the Stanford 9, also called the SAT 9, which is used as a statewide K-12 assessment in California.

vi. NAEP is the National Assessment of Educational Progress.

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Chapter 9

Alignment Among Secondary and Post-Secondary Assessments in California

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Background

As students progress through high school and into institutions of higher education, they take numerous tests that vary in scope, content, and purpose. At the K-12 level, almost all of the states are currently using or developing assessments that are aligned with state standards.[1] Some of these assessment programs rely on commercially available, standardized, multiple-choice tests administered to every student, whereas others hire their own staff to develop items in multiple formats (including, for example, essays or portfolios) which are then administered in a matrix sampling scheme (i.e., not every student completes every item). In some states, scores on these tests are used to inform decisions about grade promotion and graduation. Students who plan to attend college also take one or more admissions tests, such as the ACT or the SAT I and II, and may take Advanced Placement (AP) exams, which provide college credit for high school coursework. When they arrive at college, many students are asked to take placement exams which are used to assign them to appropriate courses. These exams are especially prevalent in large state higher-education systems.

Assessments play a prominent role in the transition from high school to college. In most cases, test scores are among the major criteria used to determine who is accepted into an institution and who is assigned to remedial courses. Although these scores are imperfect, indirect measures of what students have accomplished, they often provide valuable information that may improve the decision-making process. A well-constructed test of achievement in a particular subject area constitutes a sample of performance from a larger domain to which the user wishes to generalize. This domain will vary depending in part on the purpose of the assessment. A statewide achievement test might be designed to sample from a range of topics and to cover material learned across several grades. A college placement exam, in contrast, may have a narrower focus, reflecting the curriculum of a particular course. Consequently, these tests may not resemble one another closely in the constructs that they measure. In other words, they may not be well aligned.

The goal of the present study is to investigate the degree of alignment among these different types of tests in six case-study states, and to explore the potential consequences of any misalignment. We will compare assessments

used for college admissions, college placement, and K-12 system monitoring and accountability in each state, classifying items along several dimensions. For each state, we will obtain a summary of the ways in which the assessments are and are not aligned with one another, and discuss possible implications. This report presents the results for California. It is important to note that we do not claim that all tests must be well aligned. The conditions under which alignment is important are discussed later.

This analysis is part of a larger study commissioned by Stanford University. "The Bridge Project: Strengthening K-16 Transition Policies" is a national study funded by the Pew Charitable Trusts and the U.S. Department of Educations Office of Educational Research and Improvement. It focuses on the need to increase the alignment between higher education admissions-related requirements and K-12 curriculum frameworks, standards, and assessments. The study was prompted in part by a perceived disjuncture between standards for college admission and placement, on the one hand, and high school curriculum and instruction on the other.[2] The salience of this problem is underscored by a 1995 National Education Association survey in which 82 percent of House and Senate Education chairs polled viewed the improvement of connections between colleges and schools as among their highest priorities for higher education.[3] Admissions policies are a primary way in which colleges influence the education of secondary students, and the tests that are given as part of the admissions and placement processes are a major component of these policies.

Importance of Alignment

There are at least three major ways to think about alignment among different assessments. First, the content and format of test items send messages to students who take them. Particularly when tests have high stakes attached, such as graduation from high school, selection into college, or placement into a remedial program, they can be expected to influence the behaviors of examinees and, in some cases, their instructors. For example, multiple-choice tests are often criticized for encouraging an emphasis on memorization of discrete facts rather than extended problem solving. It is important to determine whether tests are sending a consistent message to students regarding what kinds of knowledge and skills are valued by the institutions they wish to attend. It is also critical that students have ample opportunity to prepare in appropriate ways for high-stakes assessments. If students enter college unaware of what skills they will be expected to demonstrate on a placement exam, they may not perform as well as they would if given the opportunity to prepare. It is important to note here that the signals a test sends are somewhat distinct from the measurement properties of the test. For example, it is possible that a multiple-choice test does indeed measure complex problem-solving skill, but that examinees and instructors perceive the test as being focused on memorization or recall.

The importance of aligning the various aspects of the educational system to support a common set of goals has been recognized by advocates of systemic reform,[4] promoters of test-based accountability systems,[5] and many

others involved in educational reform efforts. Especially important to standards-based reform efforts is the degree to which the standards and the assessments used to measure progress toward them are consistent with one another. A recent study by Webb found varied degrees of alignment between tests and standards in math and science in four states.[6] A content analysis of teacher licensing tests conducted by the Education Trust showed that most such tests required little more than high school level knowledge but that some were more rigorous than others.[7] Standards and assessments that are not aligned with one another or that encourage a focus on low-level skills create mixed messages and confusion for students, teachers, and others involved in promoting student learning.

The second aspect of alignment involves the consistency with which students are rank ordered or classified into categories or programs (e.g., remedial instruction) by different tests. If two tests are designed to measure the same abilities, evidence must be gathered to show that students who do well on one tend to do well on the other. Although most tests of academic achievement tend to correlate highly with one another, even when subject and item format differ, it is nonetheless important to evaluate the magnitude of this correlation and the consistency of any classification that results from test use. Scores on a high school math exam should, for example, correlate highly with scores on a math placement test administered by the higher education system.

Finally, it is essential that the standards used for decision making be comparable across assessments and set in a technically sound and credible manner. The placement process often involves selecting a cut score on an exam and assigning students to programs or courses based on whether or not their scores exceeded this cut score. Statewide assessment programs are increasingly reporting student performance in terms of standards similar to the achievement levels used on the National Assessment of Educational Progress (NAEP). These efforts have been criticized in part because the process of mapping performance to descriptors relies heavily on judgments that are often error-prone.[8] Even so, assessment results continue to be reported in terms of standards, and it is therefore important to determine whether the standards set on different tests provide reasonably consistent information about students. If a student is labeled "Advanced" or "Proficient" on a state test but is unable to reach the level of performance on a placement test necessary to avoid remedial coursework, there is reason to believe that the standards used on one or both tests are inappropriate.

The current project is designed to provide information concerning the degree and nature of alignment among tests used for K-12 system monitoring and accountability, college admissions, and college placement in six states. The project is limited in scope and will not be able to address all forms of alignment. We will rely on expert judgments regarding the features that characterize test items, thereby addressing the first aspect of alignment discussed above. Because we will not have access to test score data, we will not be able to examine item characteristics or relationships among scores on different tests and criterion measures (such as first-year grade point average). A comprehensive study of standard-setting across instruments is also beyond the scope of this project.

Importance of Considering Purpose of Assessment

The degree of alignment among different sets of tests will undoubtedly vary substantially. Even when assessments are designed to be parallel, as with alternate forms of the SAT, we would not expect perfect alignment. Because the assessments we are comparing in this study were designed for different purposes, the alignment is likely to be much less than perfect. This is not necessarily a problem, if the differences result from appropriate efforts to tailor the measure to the situation for which it was designed. For example, a low-stakes K-12 system monitoring exam (i.e., one that is used to track achievement but that has no consequences for individual students, teachers, or schools), might be designed to include a broad variety of topics and therefore may not sample adequately from college-level material. There may be no discernible negative effect of this on students' efforts to prepare for other exams. If, however, scores on this K-12 exam were used to determine which students should graduate or which teachers should get bonuses in their paychecks, there would be a significant risk of "teaching to the test" that might result in teachers and students neglecting material that is not tested. This type of response has been observed in states with test-based accountability systems.[9] Thus the purposes of the tests, and how they are viewed by school personnel and students, influence the degree to which misalignment may pose a problem.

The nature of the misalignment is also important. In the example presented above, the issue was primarily one of content sampling. The problem may be more serious when two tests reflect different philosophies concerning what students should know and what kinds of skills they should be able to display. In many cases, the misalignment among K-12 and university-level tests results from reforms that have taken hold at one level of the educational system but not another. This is particularly true in states where new tests have been developed to reflect state standards or frameworks that emphasize inquiry-based teaching and open-ended problem solving. In such cases, the skills and knowledge students are expected to demonstrate on the state exams may differ substantially from what is expected on college admissions and placement exams. This creates a confusing set of signals for students concerning how they should prepare for the admissions and placement process. It is this signaling function of tests that is the primary motivation for this alignment study.

Finally, the examinee population for which the test was designed, and the ways in which scores are used, must be considered. Exams that are intended to make fine distinctions among high-ability students need to include a large number of difficult items and may include topics that are covered in advanced courses. Such items would be less appropriate for a test that is administered to the entire public school population. So it would be reasonable to expect some misalignments. All of the results we discuss below should be interpreted with this in mind. Later we provide further discussion of the importance of considering purpose.

California's Assessment Environment

The current policy environment with respect to standards and assessments in California is

described in the chapter of this volume by Venezia. Students in California high schools, particularly those who plan to attend college, take a number of tests that differ in format and purpose. Below we discuss each of the assessments that we examined in this study. We study only mathematics and English/language arts tests, though many of the assessment programs discussed below include tests in other subjects as well.

Several of the tests we examined, including the SAT I, SAT II, ACT, and AP exams, are used nationally to aid in college admissions decisions. The SAT I, a three-hour, mostly multiple-choice exam that measures general mathematical and verbal reasoning, is intended to help predict success in college. Evidence of its validity for this purpose typically focuses on correlations with freshman grade point average. The SAT II is a one-hour multiple-choice test that assesses in-depth knowledge of a particular subject, and is used by admissions officers as an additional measure with which to evaluate student subject-matter competence. The SAT II is used primarily at the more selective institutions and is taken by far fewer students than is the SAT I. For this study, we examined the following SAT II tests: Mathematics IC, Mathematics IIC, Literature, and Writing. The ACT is an approximately three-hour exam consisting entirely of multiple-choice items. Used as an alternative measure to the SAT I in evaluating applicants chances of success in college, it assesses achievement in several academic subjects, including science, reading, writing, and math. The AP tests are used to measure college-level achievement in several subjects, and to award academic credit to students who demonstrate college-level proficiency. We examined two AP exams: Calculus AB and English Language and Composition.

Students are encouraged to take the ACT or SAT I within their junior or senior years, whereas the most optimal time to take the SAT II or AP exams is within months of completing a relevant course. Students are typically required to take either the SAT I or ACT, and, at certain schools, several SAT II exams as part of the admissions process. While the AP tests are not a requirement, admissions officers are likely to view students with AP experience as better-prepared and more competitive applicants.

In addition to the college entrance tests, California students encounter several other assessments during their high school years. As part of its Standardized Testing and Reporting (STAR) program, California currently requires public schools to administer the Stanford Achievement Test, Version 9 (Stanford 9) in grades 2 through 11, published by Harcourt Educational Measurement. Scores on this one-hour multiple-choice test are used to monitor student achievement in basic academic skills, and allow comparisons to be made to a national sample of students. In spring of 1999 a set of augmentation items was administered to supplement the Stanford 9. These included 35 language arts items and 35 math items, which were designed to assess progress toward the state-adopted content standards. In grades 8-10, the specific math items administered were determined by the math course in which the student was enrolled. The augmented portion of STAR is still evolving, and we were unable to obtain the actual items administered to students. Therefore these items are not included in our analysis. Results from the 1999 STAR

administration indicate that the augmented items were difficult for students. The governor has proposed tying merit-based college aid to performance on these items; this and other proposed high-stakes uses of STAR make it highly likely that both students and teachers will increasingly focus their efforts on this testing program.

Students also have the option of taking the Golden State Exams (GSE), which are voluntary tests allowing high schools students to earn special recognition when they graduate. The GSEs are 90-minutes tests containing both multiple-choice and open-ended items. They are intended to assess student achievement relative to state-adopted content standards in particular subject areas. We included five of these tests in our study: High School Mathematics, First Year Algebra, Geometry, Reading/Literature, and Written Composition. Some of the GSE assessments are similar to end-of-course exams (e.g., Algebra or Geometry), and are best taken while the students are currently enrolled in the course. Other GSEs are comprehensive tests that cover the content of several courses (e.g., Reading/Literature, Written Composition, and High School Mathematics). Students wishing to take these tests are advised to wait until their junior or senior year of high school.

Test	Materials Examined	Time Limit	Number of Items	Tools
ACT	Full sample form	60 minutes	60 MC	Calculator
AP Calculus AB	Full form, 1997 released exam	Two 90-minute sections	40 MC 6 Free response	Graphing calculator on last 15 MC items
California State University Entry Level Mathematics Placement Exam	Sample items	75 minutes	65 MC	Calculator
Golden State Exam (Algebra)	Sample items	Two separate 45-minute sessions	30 MC 2 OE	Calculator, Ruler
Golden State Exam (Geometry)	Sample items	Two separate 45-minute sessions	30 MC 2 OE	Calculator, Ruler

Table 1. Structural Characteristics of the Tests: Mathematics

Finally, examinees applying to any of the 31 colleges under the California State University (CSU) and the University of California (UC) systems may be required to take a placement exam in math and/or English. Many of the community colleges also administer placement exams. These tests are used to determine whether admitted students possess entry-level math and English skills. CSU has placement tests for both math and English, whereas UC administers a system-wide test only for English. The CSU system requires its students obtain a minimum achievement level on the SAT I, SAT II, or ACT in order to be exempted from taking a placement exam. UC requires a minimum achievement level on either the SAT II or AP exam. Students not meeting the minimum standards under the CSU guidelines must take a 75-minute multiple-choice math exam, and/or a 105-minute English test, which contains both multiple-choice and essay items. Examinees not meeting the UC standards for English are required to take a two-hour essay exam. The community colleges administer a range of exams; we include the Santa Barbara City College English exam in this analysis as an example. All students planning to enroll in an English course at the Santa Barbara City College must take the 85-minute College Tests for English Placement before registration. The test, consisting of both multiple-choice and essay items, is used to place students in an appropriate English course.

Purpose	Framework	Content as Specified in Testing Materials
Selection of students for higher education	High school mathematics curriculum	Prealgebra (23%), elementary algebra (17%), intermediate algebra (15%), coordinate geometry (15%), plane geometry (23%) and trigonometry (7%)
Provide opportunities for HS students to receive college credit and advanced course placement	AP Calculus Course Description	Calculus
Assess whether admitted students possess entry level math skills	*Statement on Competencies in Mathematics Expected of Entering College Students* reviewed by faculty from CA community Colleges, CSU, and UC systems	Algebra I and II (60%), geometry (20%), data interpretation, counting, probability, and statistics (20%)
Monitor student achievement toward state-approved content standards, provide special diploma	*Mathematics Content Standards for California Public Schools, Kindergarten Through Grade 12* adopted by the State Board of Education Standards	First-year algebra
Monitor student achievement toward state-approved content standards, provide special diploma	*Mathematics Content Standards for California Public Schools, Kindergarten Through Grade 12* adopted by the State Board of Education Standards	Geometry

Tables 1 and 2 list these testing programs and the type of information we were able to obtain for this study. For most tests, we used a single form from a recent administration or a full-length, published sample test. In a few instances where full-length forms were

unavailable, we used published sets of sample items. This was the case for the CSU placement tests and the GSEs. As mentioned earlier, we were also unable to obtain the STAR augmentation items, but instead looked at the STAR Test Blueprints provided by the California Department of Education. For the English/language arts (ELA) tests, the table specifies whether the test includes each of three possible types of items: reading, objective (e.g., multiple-choice) writing, and essay writing. When interpreting results, the reader needs to keep in mind that the percentages we report for the CSU and GSE exams are not necessarily the same percentages that would be obtained if we had examined an actual test form. They do, however, provide rough indicators of the emphasis placed on various topics in the materials that are used by students to prepare for the exams.

Methodology

The alignment analysis involved two major phases. In phase 1, we developed a framework

Test	Materials Examined	Time Limit	Number of Items	Tools
Golden State Exam (High School Mathematics)	Sample items	Two separate 45-minute sessions	30 MC 2 OE	Calculator, Ruler
SAT I	Full sample form	Two 30-minute sessions One 15-minute session	35 MC 15 QC 10 GR	Calculator
SAT II-Level IC	Full sample form	60 minutes	50 MC	Calculator
SAT II-Level IIC	Full sample form	60 minutes	50 MC	Calculator
Stanford 9	Full form	60 minutes	48 MC	Calculator, Ruler
Stanford 9 augmentation items	Test blueprints			Calculator, Ruler

Notes

MC = multiple-choice
OE = open-ended
GR = grid-in
QC = quantitative comparison

Table 1 continued. Structural Characteristics of the Tests: Mathematics

of specifications for each subject. We examined several existing assessment frameworks, such as those used to develop the National Assessment of Educational Progress (NAEP), and combined them to produce a set of specifications that addressed the range of topics and item types appearing on the tests included in this study. We then applied these frameworks to our set of tests, and made several rounds of modifications in response to difficulties we encountered in conducting the alignment. The process was similar to one that we use for developing scoring rubrics for open-ended assessment items. The resulting frameworks are described later in this report.

Purpose	Framework	Content as Specified in Testing Materials
Monitor student achievement toward state-approved content standards, provide special diploma	*Mathematics Content Standards for California Public Schools, Kindergarten Through Grade 12* adopted by the State Board of Education Standards	Algebra I and II, geometry, probability and statistics
Selection of students for higher education	High school mathematics curriculum	Arithmetic (13%), algebra (35%), geometry, (26%), and other (26%)
Selection of students for higher education	Three-year college preparatory mathematics curriculum	Algebra (30%), geometry (38%, specifically plane Euclidean (20%), coordinate (12%), and three-dimensional (6%)), trigonometry (8%), functions (12%), statistics and probability (6%), and miscellaneous (6%)
Selection of students for higher education	More than three years of college preparatory mathematics curriculum	Algebra (18%), geometry (20%, specifically coordinate (12%) and three-dimensional (8%)), trigonometry (20%), functions (24%), statistics and probability (6%), and miscellaneous (12%)
Monitor student achievement toward CA standards	*National Council of Teachers of Mathematics* Standards	Two subtests: mathematical problem-solving and mathematical procedures
Monitor student achievement toward CA standards	CA standards	23% algebra I, 31% geometry, 31% algebra II, 14% statistics

Phase 2 consisted of the actual alignment exercise. Two raters who had expertise in both the relevant subject area and in the application of scoring criteria to assessment results conducted the alignment analysis for each subject. The raters worked through several of the assessments together. When raters differed in their interpretations of the framework components, they discussed the difference until agreement was reached. In cases where a disagreement could not be resolved, a third rater determined the final categorization. This process resulted in reasonably high levels of agreement (kappa values of approximately 85 percent to100 percent) for most categories. Two exceptions were content area in math, where items often assessed skills in more than one area, and passage topic in reading, because passages often could be coded as addressing more than one topic. A final exception was the cognitive process category in math, discussed further below. For

these categories, agreement tended to be approximately 70 percent.

Results for Mathematics

In this section we describe the results of the alignment exercise for math tests. First we present the framework that was developed. We then describe the major areas of alignment and misalignment, and discuss the implications of these findings for the signals that students receive.

Framework

The math framework consisted of three major dimensions: technical features, content, and cognitive processes. This set of dimensions was used in an earlier study of the alignment between state tests and NAEP,[10] but we modified the definitions of these dimensions to some degree to reflect unique characteristics of some of the tests we examined in this study. The technical dimension covered features of the test that could be described through simple examination of the test and items—number of items, time limit, format (e.g., multiple-choice, essay), provisions for the use of tools such as calculators or protractors, the use of diagrams or other graphics, the use of formulas, and whether each item was embedded in a context (as in a word problem). The use of formulas

Test	Materials Examined	Time Limit	Number of Items	Purpose
ACT	Full sample form	80 minutes (35 minute reading section, 45 minute objective writing section)	40 MC reading 75 MC objective writing	Selection of students for higher education
AP Language and Composition	Sample questions	60 minute MC section 120 minute essay section	52 MC 3 essays	Provide opportunities for HS students to receive college credit and advanced course placement
California State University Entry Level English Placement Exam	Sample items	Two 30-minute sections (one section each for reading and objective writing) 45 minute essay section	45 MC reading 45 MC objective writing 1 essay	Assess whether admitted students possess entry level English skills
Golden State Exam (Reading/Literature)	Sample items	Two separate 45-minute sessions	30 MC 2 essays	Monitor student achievement toward state-approved content standards, provide special diploma
Golden State Exam (Written Composition)	Sample Items	Two separate 45-minute sessions	30 MC 2 essays	Monitor student achievement toward state-approved content standards provide special diploma

Table 2. Structural Characteristics of the Tests: English/Language Arts

was sometimes difficult to determine because problems can be solved in multiple ways, and in some cases an item could be solved either with or without a formula. Items were coded as requiring a formula only if it was determined that the formula was necessary for solving the problem. Finally, we examined the context surrounding the assessment, particularly the degree to which high stakes are attached to performance. This is important because it affects examinee motivation.

The content dimension included several categories of math topics, from pre-algebra (e.g., numbers and operations) through calculus. Almost all of the tests we examined had specifications that included many or all of these categories. We listed sub-categories as a means of making the distinctions among the main categories clearer, but we coded using only the main categories.

Finally, the cognitive dimension was identical to that used for NAEP, and included three categories—conceptual understanding, procedural knowledge, and problem solving. As is typical with studies like this, the raters found this dimension to be the most difficult to code.[11] The cognitive process categories cannot always be separated neatly: According to the NAEP framework, "These abilities are…descriptions of the ways in which information is structured for instruction and the ways in which students manipulate, reason with, or communicate their mathematical ideas. As a consequence, there can be no singular or unanimous agreement among educators about what constitutes a conceptual, a procedural, or a problem-solving item. What can be classified are the actions a student is likely to undertake in processing information and providing a satisfactory response."[12]

Framework	Reading Section?	Objective Writing Section?	Essay Section?
High school mathematics curriculum	Y	Y	N
AP English Language and Composition Course Description	Y	N	Y
CSU English curriculum	Y	Y	Y
English-Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve, adopted by the State Board of Education Standards	Y	N	Y
English-Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve, adopted by the State Board of Education Standards	N	Y	Y

In addition, items can often be solved in multiple ways, sometimes as a function of the examinees proficiency. What might be a problem-solving item for one examinee might require another to apply extensive procedural knowledge. For instance, consider an item asking students for the sum of the first 101 numbers starting with zero. A procedural knowledge approach might involve a computation-intensive method, such as entering all the numbers into a calculator to obtain the resulting sum. However, the problem-solving approach would entail a recognition that all the numbers, except the number 50, can be paired with another number to form a sum of 100 (100+0, 99+1, 98+2, etc.). The total sum is then simply computed by multiplying the number of pairs (i.e., 50) by 100 and adding 50. Clearly, depending upon the chosen approach, the same item can elicit varying levels of mathematical sophistication. The cognitive processes required by the items affect the construct that they measure and, as a consequence, examinee scores. However, for the purposes of this study, which focuses on signals sent to examinees, clear distinctions along this dimension are arguably less critical.

Aspects of Alignment and Misalignment in Mathematics

To evaluate alignment, the degree of consistency among the measures in connection with structural and content characteristics was studied.[i] Table 3 provides more details on the structural and content features of each test. The measures shared some features, particularly those related to format and administrative conditions. Every assessment included multiple-choice items, and all but the GSE were administered in a single testing session that took

Test	Materials Examined	Time Limit	Number of Items	Purpose
Santa Barbara College Tests for English Placement	Full sample form	85 minutes (30 minutes reading section, 35 minutes objective writing section, 20 minute essay)	35 MC reading 70 MC objective writing 1 essay	Assess whether students possess entry level English skills
SAT I	Full sample form	Two 30-minute sessions One 15-minute session	78 MC	Selection of students for higher education
SAT II-Literature	Full sample form	60 minutes	60 MC	Selection of students for higher education
SAT II-Writing	Full sample form	One 40-minute MC session One 20-minute essay session	60 MC 1 essay	Selection of students for higher education
Stanford-9	Full form	60 minutes	84 MC (54 reading comprehension items, 30 vocabulary items)	Monitor student achievement toward CA standards
University of California Subject A Examination	Sample questions	2 hours	1 essay	Assess admitted students' writing skills

Table 2 continued. Structural Characteristics of the Tests: English/Language Arts

approximately one hour. Students were allowed the use of a calculator, although most questions did not require extensive computation. Familiarity with basic formulas and mathematical identities was generally assumed as background for the questions, but knowledge of more complex formulas was seldom necessary.

The assessments, however, tended to have many more differences than similarities. There was a great deal of structural variation among the exams, especially with regard to the percentages of items containing formulas and illustrations. Fewer than 10 percent of the SAT I and Stanford 9 items required a memorized formula, in contrast to 25 percent of the GSE Geometry problems. Whereas the GSE Algebra and SAT II Level IIC assessments made little use of figures, the Stanford 9 and GSE Geometry exams included many illustrations, with 42 percent and 75 percent of their items, respectively, containing a diagram. Differences in the degree to which tests require interpretation of spatial or figural information are particularly important as they can affect gender and other group differences.

Framework	Reading Section?	Objective Writing Section?	Essay Section?
High school Reading and Language Arts Curriculum	Y	Y	Y
High school Reading and Language Arts Curriculum	Y	Y	N
High school English and American Literature Curriculum	Y	N	N
High school Reading and Language Arts Curriculum	N	Y	Y
Aligned with NAEP framework	Y	N	N
UC English curriculum	N	N	Y

Instances of misalignment were also observed with respect to the amount of contextualization provided. In spite of reform ideology that recommends the inclusion of personally relevant items that require applications of mathematical principles to real-life situations, many of the exams continued to measure student achievement with abstract questions—that is, questions that included only numbers and symbols. No more than 25 percent of the items found on the college admissions and placement assessments were contextualized (i.e., embedded in a story),whereas more than half of the Stanford 9 items were classified as being contextualized.

Perhaps more important than the percent of contextualized items is the nature of the contextualization. In this respect, only the GSE open-ended questions were in line with the reform movement. Although 58 percent of the Stanford 9 items were framed in realistic situations, the presented sce-

narios were brief, and had limited practical applications. On the other hand, the GSE open-ended items allowed examinees to impose their own meanings and constraints, and bore some relevancy to "real-world" skills. The GSE open-ended items will be discussed more fully in a later section.

Widespread reform efforts have also been directed toward the format in which test items are presented. Despite frequent criticisms that multiple-choice items are limited in the skills they measure, only the SAT I and GSE included items that required students to generate their own responses. The GSE open-ended questions, however, were much more extensive than the SAT I items. Successful solution of a GSE open-ended problem generally required multiple steps, and students were asked to justify or explain their solutions –frequently with diagrams or charts. In contrast, the SAT I open-ended items did not necessarily call for multiple strategies, and could sometimes be solved with algorithmic procedures. Furthermore, the SAT open-ended items were constrained, as the responses could not take on negative values. Thus, although the two tests both make use of an open-response format, the cognitive demands differ dramatically.

An analogous problem arises with similarly named tests that assess very different sets of skills. Although all the exams are considered measures of mathematics achievement, there is a great deal of variation in the constructs assessed. Approximately 52 percent of the GSE Algebra items and 37 percent of the SAT I questions measured elementary

Test	Format				Context	Graphs			Diagrams		
	MC	QC	GR	OE	C	S	RO	P	S	RO	P
ACT	100	0	0	0	22	5	2	0	13	0	0
CSU	100	0	0	0	24	0	0	0	16	0	0
GSE (Algebra)	95	0	0	5	15	0	5	0	10	0	0
GSE (Geometry)	95	0	0	5	10	0	0	5	75	0	0
GSE (HS Math)	92	0	0	8	33	0	5	0	23	0	5
SAT I	58	25	17	0	25	7	0	0	18	0	0
SAT II-Level IC	100	0	0	0	18	8	0	0	26	0	0
SAT II-Level IIC	100	0	0	0	12	12	2	0	2	0	0
Stanford 9	100	0	0	0	58	21	4	0	42	0	0

Legend:

Format
MC = multiple-choice items
QC = quantitative comparison items
GR = fill-in-the-grid items
OE = open-ended items

Context
C = contextualized items
RO = graph/diagram within response options
P = graph/diagram needs to be produced

Formulas
M = formula needs to be memorized
G = formula is provided

Content
PA = prealgebra
EA = elementary algebra
IA = intermediate algebra
CG = coordinate geometry
PG = plane geometry
TR = trigonometry
SP = statistics and probability
MISC = miscellaneous topics

Table 3. Percent of Items Falling in each Category: Mathematics

algebra knowledge, whereas 40 percent of the Stanford 9 items focused on statistics. For college admissions exams such as the SAT II Level IIC and ACT, relatively greater emphasis was given to trigonometry, a topic that was absent from the both the GSE Algebra and SAT I exams.

The misalignments among the measures go beyond content sampling, and extend to the reasoning requirements elicited by each test. Although none of the assessments focused heavily on problem-solving items, there were some differences with respect to the emphasis given to domain knowledge. Ninety-eight percent of the CSU items entailed straightforward application of declarative and procedural knowledge. In a similar vein, the vast majority of questions on the ACT, Stanford 9, and SAT II Level IC tests were also solvable via heuristics and algorithms. The SAT II Level IIC, which was intended for examinees enrolled in more advanced college preparatory math courses, placed the most emphasis on problem-solving ability (20 percent of its questions).

Formulas		Content								Cognitive Requirements		
M	G	PA	EA	IA	CG	PG	TR	SP	MISC	CU	PK	PS
15	0	17	22	5	15	25	8	3	5	40	53	7
18	0	6	32	8	16	14	2	22	0	28	70	2
10	0	0	52	0	19	14	0	10	5	19	76	5
25	0	0	0	0	5	86	10	0	0	52	38	10
15	0	23	15	0	23	23	0	15	0	62	23	15
1	8	13	37	2	6	19	0	13	11	32	53	15
12	0	2	30	10	12	28	4	8	6	34	58	8
10	0	2	14	22	12	14	18	6	12	26	54	20
6	6	0	13	2	19	19	4	40	4	63	31	6

Graphs/Diagrams
S = graph/diagram within item-stem

Cognitive Requirements
CU = conceptual understanding
PK = procedural knowledge
PS = problem-solving

Perhaps the source of the inconsistencies can be traced to variations in the purposes of the assessments and in the frameworks that guided their development. The GSE and CSU were designed to be aligned with state-adopted content standards, which have clearly prescribed guidelines that shape the content of the assessments. The Stanford 9 also employs an external framework, the *National Council on Teachers of Mathematics Standards*, but this set of guidelines encompasses standards that cut across state lines. Because they do not follow any explicit framework, the college admissions exams that assess knowledge in particular subjects (i.e., SAT II and ACT) have more loosely defined standards, and draw upon core concepts taught within most mathematics courses. The SAT I, on the

other hand, is independent of any specific curriculum or course, and is intended to assess general mathematical reasoning proficiency developed over years of schooling.

Several of the misalignments discussed earlier should probably not be considered problematic, as some of the differences emerge from appropriate efforts to adapt a test to serve a particular purpose. For instance, although both the SAT Level IIC and Stanford 9 included topics from a wide variety of courses, the SAT Level IIC drew upon trigonometry, whereas the Stanford 9 rarely included such material. The broad content sampling found on both of these assessments can be further contrasted with the topics on the GSE Geometry test, which reflected the curriculum of a specific course. In this particular case, the Stanford 9, SAT Level IIC, and GSE Geometry exam have disparate purposes, which call for differing levels of mathematical sophistication and varying extent of domain sampling. They are also targeted toward somewhat different examinee populations. Because the SAT Level IIC is typically used to select among higher-achieving students for entrance into universities and colleges, the test needs to include many complex problems with advanced content in order to distinguish among the examinees and rank order them consistently. The Stanford 9, on the other hand, is used to monitor K-12 student achievement, and therefore require items of more moderate difficulty that can be attempted by students with a wider range of proficiency levels and course-taking histories. In a similar vein, the GSE Geometry test, unlike the SAT Level IIC or the Stanford 9, is not a measure of general math ability, but a measure of achievement in a particular course. Consequently, it is more appropriate for this assessment to limit its content to a narrow area of math than to sample extensively from the entire mathematics domain. Thus, when making decisions concerning whether misalignments pose a potential problem, it is important to consider the use of the test. For the measures discussed above, the discrepancies most likely arise from variations in their purposes, and are therefore acceptable instances of misalignment.

However, discrepancies among exams with similar purposes are also evident. Consider the SAT II Level IC and GSE High School Math exams.[ii] Although both are intended to assess the proficiency of students who have taken three years of college preparatory math courses, they differ in their structural and cognitive features. The GSE contained a higher proportion of contextualized items (33 percent compared to 18 percent), whereas the SAT II included more graphs (8 percent compared to none). The GSE High School Math test also placed a greater emphasis on problem-solving items. Finally, there were vast differences in content sampling; the GSE was more likely to draw upon pre-algebra (23 percent compared to 2 percent), whereas the SAT II included more elementary algebra items (30 percent compared to 15 percent). In this particular case, the inconsistencies among the two sets of testing materials may send mixed messages to students regarding the emphases placed on various topics and skills.

Implications of the Misalignments

The misalignments among the exam materials can create a confusing set of signals pertaining to how students should prepare for the assessments. For example, the ACT and SAT I are

often used interchangeably for college admissions, yet require students to demonstrate substantially different skills and knowledge. The ACT requires examinees to memorize formulas and identities, and includes numerous textbook-like problems that can be solved via simple application of procedural and declarative knowledge. In contrast, the SAT I provides students with formulas and mathematical identities, and places relatively more emphasis on abstract reasoning. Ostensibly, students preparing for the SAT I should not spend their time memorizing formulas, and should instead focus their efforts on furthering their inferential reasoning skills. On the other hand, examinees studying for the ACT might attempt to review formulas or practice algorithmic problems. Particularly for high-stakes exams, it is crucial that students prepare in appropriate ways, as differences in preparation efforts can greatly influence performance.

Inconsistencies among the exams are not the only potential source of confusion, as discrepancies between a framework and a test can send contradictory messages. *The Mathematics Content Standards for California Public Schools, Kindergarten Through Grade 12*, the National Council on Teachers of Mathematics (NCTM) Standards,13 and the *Statement on Competencies in Mathematics Expected of Entering College Students* indicate that desired outcomes of mathematics instruction include an increase in mathematical reasoning and communication, as well as a greater appreciation for the role that mathematics plays in everyday life. Of the three exams that resulted from these frameworks (the GSEs, Stanford 9 and CSU, respectively), the content of two of the tests did not appear to address these particular outcomes. Fewer than 10 percent of the items on the Stanford 9 and the CSU assessed problem-solving ability, and none required students to communicate mathematically. Furthermore, the plethora of abstract questions on the CSU exam, and the limited practical applications of the Stanford 9 contextualized items, may suggest to students that mathematics is not useful or relevant to real-world problems. The multiple-choice format favored by the Stanford 9 and CSU can also send negative messages regarding the importance of reasoning skills. Although items in any format can be designed to measure a variety of abilities, multiple-choice items are popularly believed to be less adequate than free-response questions at measuring higher-order thinking. Additionally, multiple-choice items are solution-oriented, as students who select the correct option receive full credit, regardless of the logic or reasoning underlying the given response.

The signals stemming from the Stanford 9 or CSU can be contrasted with those from the GSE. The GSE open-ended items were well-contextualized and process-oriented. The latter factor was clearly evident in the scoring rubric, which awarded different scores to two students who had the same set of calculations but who varied in their justifications of their work. In essence, scores were strongly affected by the degree to which students communicated their responses. However, the GSE test instructions were vague as to how elaborate the students' explanations should be, and in some instances the failure to receive the maximum number of points might have stemmed from a mismatch between the item stem and the scoring guidelines. For instance, one item presented students with data relating the amount of compression with the height of a ball shot upwards, and

asked students to "make a graph of this information." Students choosing a bar graph received only partial credit because the bar graph was not the most appropriate manner in which to represent the data. Perhaps if the instructions were more specific in their requirements and prompted students to consider the most suitable manner of data representation (as opposed to any mode of representation), these students might have chosen a different type of graph. Especially for free-response items, the standards that will be used for judging responses must be clearly and adequately conveyed to examinees.

Results for English/Language Arts (ELA)

In this section we present the results of our analysis of alignment among tests used to assess students' skills in reading and writing. The tests' names were varied, but they all focused on reading and/or writing in the English language. Table 2, discussed briefly above, lists the tests along with basic details.

Framework

The ELA framework covers three types of items: reading, objective writing (mainly multiple-choice items), and essay writing. Many of the tests we examined included two or all three of these item types, whereas others focused on a single type. In contrast to mathematics, there were no clear content areas that could be used to categorize items. Instead, the ELA analysis focuses more on structural characteristics and cognitive demands. In addition, many of the tests include short passages followed by sets of items, so it was necessary to categorize both the passage and the individual item.

There was extensive overlap among the frameworks for reading, objective writing, and essay writing. As with math, we identified subcategories to sharpen the distinctions among the main categories, but we coded using only the main categories. The structural dimensions, described in further detail in Table 4a, included three categories. The topic category captured the subject matter of the passage, and consisted of five areas—fiction, humanities, natural science, social science, and personal accounts. The type category identified the author's writing style as narrative, descriptive, persuasive, or informative. The stimulus category referred to the presentation of the passage, such as a letter, essay, poem, or story. Raters used all three categories when coding the reading and objective writing items, but used only the topic category when coding the essay writing questions.

The cognitive framework for both the reading and objective writing measures consisted of a single cognitive demand dimension. Raters coded questions as assessing ability to recall information, make inferences, or evaluate an item's style. In reading, questions that could be answered via direct reference to the passage were coded as recall items, whereas questions that required the examinees to interpret the material were coded as inference items. Questions that pertained to the development of ideas or improved upon the presentation of the reading passages were coded as evaluating style.

For the objective writing measures, items that entailed application of grammatical rules were considered recall items. Typically, most of these questions concerned mechanics or usage errors.

	Description or Example
Type of Writing	
Narrative	Stories, personal essays, personal anecdotes
Descriptive	Describes person, place, or thing
Persuasive	Attempt to influence others to take some action or to influence someone's attitudes or ideas
Informative	Share knowledge; convey messages, provide information on a topic, instructions for performing a task
Topic	
Fiction	story, poem
Humanities	e.g., artwork of Vincent Van Gogh
Natural sciences	e.g., the reproductive process of fish
Social sciences	e.g., one man, one vote; cost effectiveness of heart transplants
Personal	e.g., diary account of death of a parent
Stimulus materials	
Letters	
Essays	
Poems	
Stories	

Table 4a. Description of the ELA Structural Dimension Coding Scheme

Inference items were those that required examinees to identify cause-and-effect relationships, and "evaluating style" items asked students to display rhetorical skills including an understanding of sentence organization, clarity, and other stylistic features of written work. Table 4b gives more details of the cognitive coding systems.

The above framework was not applicable to the essay writing items, since all of the essay tests prompted students to establish and support a thesis. Students could use recalled knowledge as well as make inferences, and were asked to construct a clear presentation (see Table 4b). For the essay writing questions, raters focused on the scoring criteria, which highlight the emphasis given to mechanics, word choice, organization, style, and insight.

Aspects of Alignment and Misalignment in English/Language Arts

We analyzed the degree of alignment among the different assessments by comparing the structural and content dimensions for each passage and each item. All of the ELA exams with reading sections used a passage as an item prompt, and virtually all of the studied tests included a set of multiple-choice items (the UC placement test was the exception).

Perhaps indicative of the loosely defined nature of the subject matter, differences among

the exams were much more prevalent than in math. Some assessments did not involve a written composition (ACT, SAT I, SAT II Literature, and Stanford 9) whereas others required two or three essays (AP, GSE Reading/Literature, and GSE Written Composition). There were also vast differences in the amount of time students were permitted to write their essays; the UC system allotted two hours for a single essay, whereas the SAT II Writing exam and the Santa Barbara City College exam each allowed only 20 minutes for essay completion.

The differences were not limited to the administrative characteristics of each exam, but were also apparent with respect to the structural features. In reading, all of the passages on the SAT II Literature test were narrative, and 63 percent were on fictional literary topics (see Table 5a). In contrast, the SAT I passages tended to be informative (60 percent), and were much more likely to draw from humanities (40 percent). The essay was the most predominant presentation mode, with all of the passages on the AP, CSU, GSE Reading/Literature, and Santa Barbara City College exams presented in this manner. The majority of the passages on the SAT I and ACT were also essays (80 percent and 75 percent, respectively), but the SAT II Literature and the Stanford 9 varied the stimuli in which the reading passages were presented. The Stanford 9 included a letter and a flyer, whereas the SAT II Literature test was the only reading exam that included poems as a stimulus. These formats were not found on the other reading exams.

On measures of objective writing, the ACT, CSU, GSE Reading/Literature, SAT II

	Description or Example	Used for Reading	Used for Object Writing	Used for Essay Writing
Cognitive Demands				
Recall	Answer can be found directly in the text, or by using the definitions of words or literary devices, or by applying grammatical rules	X	X	
Infer	Interpret what is already written	X	X	
Evaluate style	Improve the way the material is written	X	X	
Scoring Criteria				X
Mechanics	Grammar, punctuation, capitalization			X
Word choice	Use of language, vocabulary, sentence structure			X
Organization	Logical presentation, development of ideas, use of appropriate supporting examples			X
Style	Voice, attention to audience			X
Insight	Analytic proficiency, accurate understanding of stimulus passage			X

Table 4b. Description of the ELA Cognitive Dimension Coding Scheme

Writing, and Santa Barbara City College assessments included passages as item prompts, whereas the SAT I did not (see Table 5b). Virtually all the passages were presented as essays, although the Santa Barbara City College exam did include stories as a stimulus. There was some variation in the types of passages, as the GSE Written Composition passages were narrative, whereas the CSU passages were informative. Passages on the ACT, SAT II Writing, and Santa Barbara City College exams were approximately equally divided between narrative and informative. In a similar manner, the topics of the objective writing passages varied greatly from one test to the next; the ACT and SAT II Writing items tended to include themes from humanities (60 percent and 100 percent, respectively) whereas the CSU test focused on issues in social science. In contrast, the GSE Written Composition included personal accounts.

For the extended essay writing assessments, all the measures but the CSU and Santa Barbara City College exams included a topic from humanities (see Table 5c). Personal accounts were also commonly chosen prompts, found on such assessments as the AP, GSE Written Composition, GSE Reading/Literature, UC Subject A, and Santa Barbara City College tests. Of the forms that we studied, only the GSE Written Composition and CSU exams selected a social science theme, and only the UC Subject A test included a topic from natural science. None of the prompts drew from fictional material.

Inconsistencies among the exams were particularly evident with respect to the cognitive demands of each test. Of the reading assessments, only the AP test required students to analyze a literary excerpt via a written composition. The remaining exams assessed knowledge and understanding of a passage solely with multiple-choice items. The cognitive complexity of the multiple-choice questions varied greatly among each of the measures. In reading, for instance, the SAT I and SAT II Literature tests placed great emphasis on analytical ability, with 83 percent and 80 percent of their items, respectively, assessing inferential skills (see Table 5d). Tests such as the AP and CSU also emphasized inferential skills, although not as heavily as the SAT I or SAT II Literature exams (77 percent and 66 percent, respectively). In contrast, measures such as the ACT, Stanford 9, and GSE Reading/Literature focused on straightforward recollection of information (58 percent, 71 percent, and 86 percent of their questions, respectively).

There was also great variation in cognitive complexity on the objective writing assessments (see Table 5e). Of the six measures, only the SAT I and the Santa Barbara City College included a significant proportion of items assessing inferential skills (100 percent and 57 percent of their items, respectively). Such questions comprised less than 5 percent of the items on the ACT and SAT II Writing exams, and were completely absent from the GSE Written Composition test. The CSU focused on evaluating writing style (64 percent), whereas GSE emphasized recall items (67 percent). Tests such as the ACT and SAT II Writing exams were more balanced in the kinds of skills they assessed; the items on these tests were mainly divided among recollection of information and evaluation of style.

There was much more consistency with respect to the kinds of cognitive demands

Test	Type				Topic				
	Narrative	Descriptive	Persuasive	Informative	Fiction	Humanities	Natural Science	Social Science	Personal Science
ACT	50	0	0	50	25	25	25	25	0
AP	75	0	0	25	0	25	25	0	50
CSU	100	0	0	0	0	100	0	0	0
GSE Reading/Literature	100	0	0	0	0	0	0	0	100
Santa Barbara City College	0	0	0	100	0	43	43	14	0
SAT I	40	0	0	60	20	40	20	20	0
SAT II Literature	100	0	0	0	63	0	0	13	25
Stanford 9	50	0	17	33	17	33	33	0	17

Table 5a. Percent of Reading Passages Falling into Each Category

Test	Type				Topic				
	Narrative	Descriptive	Persuasive	Informative	Fiction	Humanities	Natural Science	Social Science	Personal
ACT	40	0	0	60	0	60	20	0	20
CSU	0	0	0	100	0	0	0	100	0
GSE Written Composition	100	0	0	0	0	0	0	0	100
Santa Barbara City College	50	0	0	50	0	100	0	0	0
SAT I	0	0	0	0	0	0	0	0	0
SAT II Writing	50	0	0	50	0	100	0	0	0

Table 5b. Percent of Objective Writing Passages Falling into Each Category

Test	Topic			
	Fiction	Humanities	Natural Science	Social Science	Personal Essay
AP		X			X
CSU				X	
GSE Reading/Literature		X			X
GSE Written Composition		X		X	X
SAT II Writing		X			
Santa Barbara City College					X

Table 5c. Topic Contents of Essay Writing Prompts

	Stimulus		
Letter	Essay	Poem	Story
0	75	0	25
0	100	0	0
0	100	0	0
0	100	0	0
0	100	0	0
0	80	0	20
13	25	50	13
17	33	0	50

	Stimulus		
Letter	Essay	Poem	Story
0	100	0	0
0	100	0	0
0	100	0	0
0	50	0	50
0	0	0	0
0	100	0	0

required by measures of writing ability (see Table 5f). Skills such as mechanics, word choice, style, organization, and insight were identified as important factors in virtually all of the tests we studied. However, the GSE Reading/Literature test downplayed the importance of mechanics, word choice, and style, and the SAT II Writing test did not identify did insight as part of its scoring criteria. The implications of these omissions will be discussed later.

As was the case with math, two verbal tests may have the same construct label, yet make vastly different cognitive demands. The GSE Reading/Literature, AP Literature and Composition, and SAT II Literature test are all measures of reading proficiency, but differ in the kinds of skills assessed. The GSE Reading/Literature items typically entailed recollection of facts directly from a given passage, and usually did not ask students to judge the mood or tone of the piece. Both the AP and SAT II Literature assessments, on the other hand, required deeper analysis of the reading passage, oftentimes asking students to determine the effect of a given line or infer the intentions of the author. The AP exam, in particular, required students to apply their knowledge of literary devices. The AP test included many items asking students to identify examples of hyperboles, alliterations, and the like, but such questions were not found on either the GSE Reading/Literature or the SAT II Literature exams.

Discrepancies between the curricular standards and the tests were also apparent. For instance, the ability to learn the meaning of a word from context is perceived to be an integral aspect of English, yet most of the tests did not address this skill. Instead, many of the vocabulary items assessed students' recall ability rather than their inferential skills. The ACT, AP, GSE Reading/Literature, SAT II Literature, and Stanford 9 assessments typically framed a vocabulary item as follows: "In lines XX, the word 'panacea' is best understood to mean…". Although the question is phrased to indicate that the meaning relies on context, it can be construed as a recall question, as *a priori* knowledge of the definition is sufficient for a correct answer, since the context of lines XX did not affect the standard definition of "panacea."[iii]

Two tests that did ask examinees to derive meaning from context were the CSU and the SAT I. The CSU contained a section in which

Test	Recall	Infer	Evaluate Style
ACT	58	42	3
AP	23	77	0
CSU	33	66	0
GSE Reading/Literature	86	14	0
Santa Barbara City College	54	46	0
SAT I	18	83	0
SAT II Literature	13	80	7
Stanford 9	71	29	0

Table 5d. Percent of Reading Items Falling into Each Category

Test	Recall	Infer	Evaluate Style
ACT	48	4	48
CSU	14	21	64
GSE Written Composition	67	0	33
Santa Barbara City College	16	57	27
SAT I	0	100	0
SAT II Writing	50	3	47

Table 5e. Percent of Objective Writing Items Falling into Each Category

	Scoring Criteria Factors				
Test	Mechanics	Word Choice	Organization	Style	Insight
AP	X	X	X	X	X
CSU	X	X	X	X	X
GSE Reading/Literature			X		X
GSE Written Composition	X	X	X	X	X
SAT II Writing	X	X	X	X	
UC Subject A	X	X	X	X	X

Table 5f. Factors Identified in the Scoring Criteria of Each Test

a nonsense word was used in a sentence, and students were asked to decipher the meaning of the nonsense word. Unlike the other vocabulary tasks described earlier, students must infer the meaning of the word based on how it is used, and cannot rely on prior knowledge to answer the item.

Similarly, the SAT I contained questions assessing analytical and inference ability. The SAT I included an analogy section that required students to analyze the relationships between a pair of words, and choose another pair of words whose relationship was most similar to the original pair. The SAT I also contained an additional section in which a sentence with omitted words was presented. Examinees were then asked to choose which set of words, when inserted into the sentence, would make the sentence most meaningful. A unique feature of some of the SAT I items was that they addressed not only the primary meaning of a word, but the secondary and tertiary meanings as well.

Implications of the Misalignments

As with math, the misalignments among the ELA assessments can send confusing messages. There appeared to be little consistency among the exams, thereby rendering it difficult to counsel students on the best preparation methods. Measures that include only multiple-choice items would be approached in vastly different ways than exams that require a sample of the examinees' writing proficiency. Moreover, even when two tests require a written composition, the variations in the administrative conditions and scoring criteria call for different kinds of strategies. For instance, teachers sometimes instruct students to organize their thoughts with a detailed outline. This technique may be appropriate for a two-hour UC essay, but it is less feasible for a 20-minute SAT II Writing task. Again, it is important to acknowledge that some of these inconsistencies may be more problematic than others, given the diverse purposes and examinees populations of these testing programs.

The inconsistency in the scoring rubrics, particularly the omission of mechanics, word choice, and style from the GSE Reading/Literature scoring rubrics and of insight from the SAT II Writing scoring guidelines, give rise to several concerns. First, these skills are part of the scoring criteria in most English courses and for the other assessments we examined. This means that the GSE Reading/Literature and SAT II Writing standards are incongruent with those that are typically expressed. Additionally, it is highly unlikely that the raters would be unconcerned with these factors when scoring the test, as mechanics, word choice, style, and insight are inherently part of what constitutes good writing ability. If raters are indeed including these skills as part of the scoring criteria, then students have been misinformed about the standards on which they are judged. In light of the kinds of signals the scoring rubrics send, developers of the GSE Reading/Literature and SAT II Writing assessments may wish to reconsider the current guidelines, and be more explicit about their scoring criteria.

Finally, there are concerns about the inconsistencies among the scoring standards across different measures of writing ability. The requirements for a model essay under the GSE Written Composition or CSU guidelines are less rigorous than those found for the AP exam.

For the two former tests, maximum scores were awarded to sample essays that had diction errors, usage and mechanics lapses, and underdeveloped paragraphs. Under the AP guidelines, such compositions might receive adequate scores, but would not be viewed as exemplary; only essays that demonstrate exceptional rhetorical and stylistic techniques, with substantial evidence to support a position, would receive a maximum score under the AP scoring rubrics. Because the GSE Written Composition, CSU, and AP exams are intended for different student ability levels and serve different purposes, misalignments among their scoring criteria are inevitable. Nevertheless, such discrepancies may send mixed messages to students and school personnel regarding the standards of what is considered an excellent composition.

Discussion

In general, many of the studied tests were not well-aligned with respect to structure or content. However, whether the inconsistencies are a source for concern needs to be interpreted in light of the purpose to which the assessments are intended. The misalignments may not pose a problem if they represent legitimate differences stemming from diverse uses of the measures. Indeed, different test purposes will necessitate different kinds of formats, administrative conditions, and item content. As was discussed earlier, variations in the content and difficulty level of the SAT Level IIC, Stanford 9, and GSE math tests should not be considered problematic, as the exams have different test uses, and it is virtually impossible to create one test that can simultaneously serve those different purposes. However, when the measures serve similar purposes and examinee populations, yet differ substantially in terms of content and cognitive demands (as appears to be the case for the GSE High School Math and SAT Level IC assessments, for example), there may be valid concerns regarding the misalignments.

Regardless of whether or not the discrepancies are warranted, the inconsistencies can translate to a perceived testing overload by the examinees. Consider, for instance, the students applying for entrance to the University of California system. They are required to take the SAT I or ACT, SAT II, and possibly a placement exam. They are also encouraged to take the GSE and AP exams. The overabundance of exams students are required to take can foster a perception that the various measures are redundant. Although many of the tests have distinct uses and are therefore not interchangeable, it is likely that many students will not recognize the reasons underlying the need for multiple assessments, and may view the exams as unnecessary, time-consuming, and stressful.

The misalignments can also send inconsistent signals with respect to preparation efforts. Although all of the testing preparation materials claimed that a challenging and rigorous academic program was the best way to prepare for their exams, structural and content variations among the tests dictated differences in the most appropriate preparation strategies. It is likely that instructors confronted with preparing students for the entry-level CSU placement exam would most likely approach this task in a different manner than if they were to prepare their students for the more rigorous college-entrance assessments. Perhaps the most important signaling function of the tests relates to the messages they send to students about what kinds of

skills are valued. It has been shown that large-scale assessments, particularly those with direct consequences for students or teachers, often influence the kinds of skills and knowledge that are developed.[14] That is, both students and teachers are likely to focus their attention on the content that is tested. For this reason, there have been efforts from various educational reform movements and professional development organizations to increase the emphasis given to problem-solving items that are framed in real-world contexts.

However, there remains a disassociation between the skills that are considered valuable and the skills that are actually assessed. In math, the majority of the items on the studied assessments involved heuristics using procedural or declarative knowledge. Moreover, as few items had meaningful applications to the real world, these tests do not convey the importance of math beyond the classroom or testing context. It appears that despite efforts to the contrary, students may be receiving messages that mathematics is a sequence of algorithms to be memorized and applied, with little connection to real life problems.

Similarly, on the ELA assessments students are not given clear signals as to which skills are valued. Arguably, the ability to make inferences or to evaluate the style of a given piece is as valuable as the ability to remember information, but this message is probably not adequately conveyed by exams such as the Stanford 9 or the GSE Reading/Literature test. Such tests encourage students to direct their efforts toward recollection of facts and details, as opposed to deeper analysis of the given passage. Moreover, the emphasis given to recall skills, particularly with respect to the assessment of vocabulary, can lead some students to learn the definitions of words through rote methods, such as memorization. Although this may lead to an increase in scores, it is not the ideal way of acquiring meaning, as nuances are not learned as adequately as if the word had been encountered in context.

Perhaps the most problematic signal arises from the exams administered at the high school level, including the Stanford 9 and the exams required for college admissions, because the majority of these do not require examinees to demonstrate their writing skills. The SAT II Writing test, which does include an essay item, does not require multiple writing samples, nor does it allow an extended period of time for students to develop their ideas fully in a single essay. This may serve to communicate to students that writing is not an essential skill for college-level courses. In reality, however, most university-level classes require students to write extensively. Thus, the kinds of skills and knowledge valued in universities can differ substantially from students' expectations. Again, if the measures are to send signals that writing ability is a desired skill, then the current tests need to be modified to reflect that message.

Limitations of the Alignment Analysis and Recommendations for Future Work

The use of expert judgments is a fairly common approach to studying alignment as well as content validity.[15] The evidence gathered through this study will be useful in evaluating the validity of currently used tests for the purposes for which they were designed. However, this study

does not provide a complete picture of these assessments, and other analytic approaches might lead to somewhat different conclusions. Observations and interviews with students as they take the tests, an approach that is sometimes used during the test development process, would undoubtedly result in somewhat different interpretations of a tests reasoning requirements. Empirical data are also needed to quantify the consistency of student performance across various kinds of tests. It is important to evaluate the likelihood that students who perform well on one kind of assessment will do so on another, as large discrepancies in performance can send confusing signals regarding the actual proficiency level of a student. Particularly for examinees attempting to prepare for a high-stakes measure, it is essential that they receive accurate and consistent information about their strengths and weaknesses. Finally, increasing the number of forms studied for each assessment would enhance the generality of our findings. The studied tests represent a sample of skills from a single testing occasion, and forms from other occasions will certainly vary somewhat. This is especially true when we analyze alignment among ELA topics, where there is a limited sample on any given test form (e.g., there may be only one essay). Studying multiple forms could increase the stability of our results.

The study would also be improved if we increased the number of expert raters and refined our analysis of agreement levels among these raters. An ideal study would bring in a larger number of expert judges, selected to represent a range of experience in both the K-12 and higher education sectors. It would also involve a more systematic analysis of differences in coding, with perhaps some quantification of commonalties and differences among tests. Because we looked at a large number of tests across several states,[iv] it was not feasible to conduct a more thorough study. However, as we argued earlier, alignment is a more critical consideration for some sets of tests than for others. Therefore there may be great benefit in conducting a more comprehensive alignment study on the few tests for which alignment really matters, allowing resources to be targeted rather than spread across a large number of tests. In California, for example, it would be worth conducting a study in which the Stanford 9 test is compared with other measures of high school math and reading achievement, such as the SATII exams. Comparisons with the SATI are arguably less relevant. In any case, it is clear that students, parents, educators, and policymakers all could benefit from attention to the messages and signals that tests are sending students.

An additional problem stems from the lack of availability of full test forms for some of the testing programs. Inspection of actual forms would provide more accurate information about the distributions of items across our various categories. On the other hand, because this study is focused on the signaling function of tests, the use of publicly released materials rather than actual forms may actually be preferable. It is unlikely that students remember many details of the items they took on a single testing day. In contrast, the preparation materials, including sample items and sample test forms, probably have a greater influence on students preparation behaviors and their interpretation of what the test measures.

Finally, many of the interpretations we make above depend on assumptions about stu-

dents interpretations of the signals sent by tests. It would be extremely valuable to interview students, educators, and other school and college personnel to assess their views on these various testing programs and to find out how the tests influence their teaching and learning. It is also important to discover whether some groups of students are more heavily influenced by these tests than are others. For example, the group of students who engage in extensive SAT preparation activities is undoubtedly different from those who take the SAT with little prior preparation. Data collected as part of the Stanford Bridge Project will provide useful information to supplement this alignment study.

Notes

i We did not include the results for the AP Calculus AB exam because it was markedly different from the other studied tests. For example, it did not include material from any other mathematical content area except calculus, and was the only measure that necessitated a graphing calculator. Moreover, it was intended to assess the proficiency level of a very select group of high-ability students. Given that the AP shared few commonalities with the other assessments, it was excluded from the following discussion.

ii Again, for the GSE we did not examine an actual test form, but instead use the set of released items given to teachers and students. Thus the percentages discussed here do not represent percentages of items that examinees take, but instead indicate the relative emphases given to various topics on the materials that students use to prepare for the tests.

iii As discussed earlier, whether an item assesses inferential skills or recall ability depends upon a students proficiency level.

iv Although this report includes only California, we performed similar analyses for five additional states.

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10. Kenny and Silver, 1999.

11. Ibid.

12. National Assessment Governing Board, *Mathematics Framework for the 1996 National Assessment of Educational Progress: NAEP Mathematics Consensus Project*, GPO 065-000-00772-0 (U.S. Department of Education, 1995), available at http://www.nagb.org).

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15. S.G. Sireci, "Gathering and Analyzing Content Validity Data," *Educational Assessment*, 5 (1998): 299-321.

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