Policy Lessons From California Public Schools that Achieve Higher than Expected

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About the Author

Rob Wassmer is a professor of public policy and economics in the Graduate Program in Public Policy and Administration at California State University, Sacramento. He earned his doctorate in economics from Michigan State University in 1989 and previously taught at Wayne State University and Eastern Michigan University. Professor Wassmer's research and teaching interests are in policy-oriented microeconomic analysis, state and local public finance, education, and urban economics. He has authored or co-authored over 20 published articles on these subjects in journals such as *Economics of Education Review, Urban Studies, National Tax Journal,* and *Journal of Urban Economics*; and two books: *Readings in Urban Economics: Issues and Public Policy* (Blackwell, 2000) and *Bidding for Business: The Efficacy of Local Economic Development Incentives in a Metropolitan Area* (with co-author John Anderson, W.E. Upjohn Institute, 2000). For the 2000-02 academic years, he is serving as a visiting consultant to the California Senate Office of Research. As the past coordinator of the system-wide California State University Faculty Research Fellows Program, he also managed a group of academic public policy consultants to the state of California. In the fall of 2000, Dr. Wassmer received the President's Award for Research and Creative Activity from Sacramento State. Visit his web site at www.csus.edu/indiv/w/wassmerr.

Executive Summary

When schools have similar characteristics, yet their student bodies demonstrate radically different levels of overall academic achievement, it makes sense to try to learn why. This paper is a scientifically constructed effort to do that. Its goal is to determine what the state's high-performing elementary, middle and high schools are doing differently than low-performing schools with similar characteristics.

If the differences between high and low-performing public schools are statistically significant, and some of them are, perhaps the low performers should be encouraged to incorporate the practices of the high performers with the aim of moving toward higher achievement.

This approach really began three years ago with the Public Schools Accountability Act (PSAA), enacted by the California Legislature with the signature of Governor Gray Davis to hold schools accountable for improving students' academic performance. At its core is the Academic Performance Index (API), a benchmark score given schools statewide based on standardized results of an annual student assessment test known as the SAT 9.

Administered in the 1999-00 and 2000-01 academic years, this test permits the state to compare the performance of student bodies in California schools that have similar types of students, parental education levels, ratios of credentialed teachers and other characteristics in common. Schools are expected to improve their API scores each year. Under terms of the PSAA, those that perform well are rewarded. Those that don't – and fail to improve within two years – could be penalized beginning in fall 2002.

The policy aim of this study is to offer ways to assist low-performing schools by uncovering the instructional, administrative or other practices that high-performing schools are using but that low-performers are not. We analyzed data from 1999-00 and 2000-01 (The only data available at the time the study began) to predict how similar schools might perform on their API scorecards, then compared those that performed significantly better than expected with those that did significantly worse.

Specifically, the project compared elementary, middle and high schools that performed in the top 5 percent and bottom 5 percent of the expected range of outcomes based on their similar characteristics. Performance expectations were derived through a well accepted statistical process called multiple regression

analysis. The results from this analysis were supplemented with teacher data from a publicly available statewide database and written surveys in fall 2001 of the principals at these high- and low-achieving schools to determine information about differences in practices at the schools

This research project, a collaboration between a professor of public policy and economics at California State University, Sacramento, and the California Senate Office of Research, found a number of statistically significant ways in which California's high-achieving schools differed from those that fell at the bottom of expectations.

Among the results:

- High-performing elementary schools were more likely than low-performers to have teachers with bachelor's or master's degrees. High-performing middle schools had a greater percentage of teachers who had completed master's degrees or doctorates. At low-performing schools, more teachers had begun work on degrees without finishing them.

- Teachers and principals at the high-ranked elementary and middle schools had more average years of job experience.

- There were more part-time teachers at the high-performing elementary, middle and high schools, indicating more staff flexibility.

- The total staff at top middle schools was composed of a larger percentage of classroom teachers than observed at bottom-performing middle schools.

- More teachers had earned full teaching credentials at high-performing elementary schools. In the high-performing middle schools, there were more credentials for bilingual teachers and reading specialists than at low-performers. Top-performing high schools had more physical science credentials among their faculty than the low-performing high schools.

- Top-performing year-round schools had shorter vacation periods. Low-performing year-round schools had longer periods on and longer periods off.

- High-performing elementary schools were more likely to be magnet schools. Principals at top elementary schools were more likely to say most of their students had attended preschool than at low-performers.

- Principals at top middle schools were more likely than those at bottom middle schools to say their schools could succeed with any student, that they worked to involve parents, and that they had flexibility to use resources for academic improvement. At top high schools, more principals believed they had the flexibility to hire replacement teachers.

Applying these and other findings from the research project would suggest that:

- More experienced teachers, who have earned their degrees and credentials, would be most beneficial for low-performing schools. However, with some exceptions, requiring teachers to have specific credentials probably wouldn't do much to improve student performance at the state's lowest achieving public schools.

- Principals at low-performing schools should be allowed more flexibility, options and choices in hiring teachers.

- Low-performing schools that haven't improved should be encouraged to move to a year-round calendar characterized by short periods of instructional days and short periods of days off.

- Teamwork in dealing with low-achieving students should be encouraged in poorly performing schools. This is because principals in the top-performing elementary, middle, and high schools were more likely than principals in low-performing schools to agree that educators worked in teams at their schools.

- Special attention should be paid to low-performing middle schools. Changing some administrative practices at these schools likely would raise their API scores. These revised practices would include supporting greater parental involvement, implementing more frequent assessment of students and using that information for improving academic achievement, giving principals greater flexibility over how their school resources are spent, and making physical improvements to campuses.

- Experienced principals, and those successful at producing high API scores elsewhere, should be encouraged to lead under-performing schools.

As a footnote, some findings were statistically significant but offered no policy implications beyond adding to a pool of observable knowledge. Perhaps there were explanations for them, perhaps not. High-performing elementary and middle schools had more female teachers than low-performing schools did. Low-performing high schools had larger ratios of male teachers. High-performing sites at all grade levels had a greater percentage of Asian-American teachers.

Section I: School Performance as a Policy Concern

Background

Raising student achievement, particularly among students from low-income and minority communities, is a prominent public concern. As public attention has increasingly focused on this issue, efforts to address it have increased as well.

In an attempt to tackle the challenges facing low-performing schools, states have imposed various forms of performance-based accountability systems. These systems combine statewide standards and assessment with increased teacher accountability and usually contain three major components:

- Clear instructional goals for students, teachers, and districts (standards).
- Comprehensive assessment techniques and indicators based on relevant content standards (criterion-referenced testing).
- Consequences for all involved participants (both sanctions and rewards).

A primary component in the effective functioning of performance-based accountability systems is the targeting of available resources to the schools in need of the most help.

Response of California State Government

Following the path of other states, the California Legislature passed the Public Schools Accountability Act (PSAA) in 1999. The PSAA is designed to hold schools accountable for improving students' academic performance by establishing an incentive system that offers rewards for schools that demonstrate improvement, as well as interventions and sanctions to schools that fail to meet established growth targets.

At the base of this system is the Academic Performance Index (API), a composite score consisting of various indicators – with standardized test results worth at least 60 percent. The API scores calculated for California schools in 1999-00 and 2000-01 are entirely based upon results from a norm-referenced state test, the SAT 9, and standardized to vary between a score of 200 and 1,000.

The State Board of Education (SBE) and the California Department of Education (CDE) as of fall 2001 were continuing to conduct research on which new indicators to include in future calculations of a school's API score. Possible additional indicators, closely tied to state standards, could include primary language tests, high school exit exams, attendance rates, and graduation rates.

The sanctions and rewards of the Public School Accountability Act are, respectively, the Immediate Intervention/Underperforming Schools Program (II/USP) and the Governor's Performance Awards Program (GPA). The II/USP offers financial support to schools that rank in the first five deciles of performance among all California schools and fail to meet a target for expected growth in their scores. The GPA provides rewards to schools demonstrating strong improvement or unusually high achievement on their API scores.

II/USP schools that fail to meet their growth targets for two consecutive years are subject to state sanctions; the most severe would be a shutdown or state takeover of the school. The first of these sanctions can be imposed in the fall of 2002. Schools that meet their API annual growth targets and meet the growth targets for their identified subgroups – subgroups are defined as at least 15 percent of a school's total pupil population or at least 100 students – receive performance awards.

In the summer of 2001, the Legislature appropriated approximately $200 million to assist low-performing schools beyond the $523 million already budgeted for II/USP schools.

Sanctions in Near Future

Currently, a school's target API is a minimum of 5 percent greater than its previous year's API. Schools that score in the lower half of the statewide distribution of the SAT 9 test, and that failed to make the growth target set for their API in the previous year, are asked to participate in the II/USP. Under-performing schools that fail to meet their growth targets, and fail to show significant improvement after two years of being in the II/USP, will be subject to state sanctions.

The PSAA requires that the state-imposed sanctions include at least one of the following:

- Allowing students to leave to attend any other public or charter school.
- Assigning management of the school to another appropriate educational institution and/or reassigning certified employees of the school.
- Renegotiating a collective bargaining agreement when the current one expires and/or reorganizing the school.
- Closing the school.

Under the original PSAA schedule, these state-imposed sanctions will go into place for the first time in a matter of months.

The purpose of this research project is to look at high-performing schools in California to learn performance-enhancing lessons that could help in crafting sanctions and interventions that could most improve the low-performing schools identified through the Public Schools Accountability Act.

Previous Studies on API Scores and School Site Characteristics

In addition to reporting annual API scores and rankings, schools in California are asked to report on a number of attributes that include characteristics of students and the percentage of teachers holding full and emergency credentials. Existing studies have used this data to examine relationships between school site characteristics and API scores

In 2001, the California Teachers Association (CTA) issued a report titled *Low Performing Schools = High Priority Schools; Analysis of the 2000 Academic Performance Index*. In this analysis, school sites were separated into elementary, middle, and high school categories. In these subcategories an average value was found for each of the 18 descriptive variables collected at each school site, for each decile of the distribution of recorded 2000 API scores.

The resulting graphs demonstrated striking relationships between many of the 18 descriptive variables and high- and low-performing API schools. On average, the CTA found that schools in the lower deciles had higher levels of non-credentialed teachers, higher levels of socio-economically disadvantaged students, and higher percentages of year-round schools.

The CTA findings are synonymous with findings recorded in the first annual *School Improvement Report* published by the U.S. Department of Education (USDE) in January 2001. The USDE found schools in need of improvement serve disproportionately poor and minority communities with fewer resources and credentialed staff, and less district support. Though when evaluating the CTA and USDE results, one must understand that the reported relationships are correlations and only show the relationship between two variables without controlling for the effects of multiple causal factors. As we show later, this is an important distinction.

A better method to help design policy responses to low-performing public schools considers the influence of a change in a casual factor on the school's academic performance as if other relevant causal factors did not change. For instance, consider two schools that are identical in other measured characteristics except that one school exhibits a greater amount of something thought to influence academic achievement. The important policy question is what is the independent influence of this larger measure on the academic achievement observed at the school?

The PSAA requires that the CDE produce a system of school rankings based on the Academic Performance Index. These rankings are designed to identify which schools exhibit similar characteristics important for API scores. Although California law does not specify how the CDE produce this ranking, in a 2000 report the department describes its decision to use regression analysis to help produce the "Similar Schools Rank." Using nearly the same school characteristics as later used in our regression analysis, the CDE runs regressions that determine the independent contribution that each characteristic makes to the average California elementary, middle, and high school's API score.

As described on page 11 of its report, the CDE regression results are not identical to ours because they chose to eliminate some of the explanatory variables that we retain. However, one should think of the first stage of our analysis as quite similar to the CDE process used to determine the "Similar Schools Rank." But instead of placing schools in a rank of one to 10, as CDE does, we use the regression to predict a specific API score.

In March 2001, the California Budget Project (CBP) produced a study, *What Do the 2000 API Results Tell Us About California's Schools?* that used 1999-00 API data. Using a statistical procedure (multiple regression analysis) that we later use here, the CBP explored how school size, parent education, teacher quality (as measured by full and emergency credentialing), and student diversity each contributed to variations in API scores holding other relevant causal variables constant.

After controlling for other causal factors, the CBP report confirmed many of the findings presented by the CTA study. According to the CBP's findings, as school enrollment increases, API scores decrease. As the number of teachers with emergency credentials increases, a school site's API score decreases. Holding other factors constant, year-round schools had lower API scores than schools on traditional calendars. One important way this analysis differs from what we do later is that no distinction was made among elementary, middle, and high schools.

What Improves Academic Performance

With increased public attention directed at turning around low-performing schools, and with state-legislated interventions designed to do that fast approaching, there exists a need to know the factors present in schools that produce high and low API scores. Some of these factors may be beyond the control of schools, while others are not. Knowledge of these influences on a site's API score can help policymakers develop instruments that better assess the true contribution that a school makes to student performance, and offer valuable lessons to California policymakers wishing to craft solutions to improve the academic performance of all students in the state.

Remainder of Paper

The goal of this research paper is to inform policymakers of the factors that have improved academic performance at California school sites. This goal is achieved in the remaining six sections.

The next section offers a survey of the academic literature on the influences that have been previously found to determine academic performance at individual school sites. Section III describes how we used the knowledge gained in these previous studies to conduct our own evaluation of the influences that drive academic achievement in California's schools. The initial stage of our evaluation involves a statistical regression analysis. The overview of this technique and results are given in Section IV.

The regression analysis helps us to identify high- and low-performing school sites. In Section V we look for other, already-measured characteristics of these two types of schools. Since all of the relevant characteristics that could distinguish high-performing schools from low-performing schools are not available in currently collected data, Section VI describes a survey sent to principals at high- and low-performing schools to collect this information. Finally, Section VII offers the conclusion and policy options drawn from this study.

Section II: What Matters in School Performance

The key objective of public education is the generation of academic achievement. Though there is not universal agreement on this statement, evidence in support of it comes from the fact that it is the most widely measured outcome associated with public schooling. Perhaps this is because appropriately measured academic achievement can provide the basis for children to become economically productive citizens and to fully appreciate and participate in the social, political, and cultural aspects of 21st Century life.

Since 1998, the state of California has tried to measure the academic achievement of its public school students through their scores on the nationally standardized Stanford 9 test (SAT 9). Subsequently, these individual student test scores have been aggregated at the school-site level and an Academic Performance Index (API) produced for nearly all school sites in the state.

At the time this study began, API test scores and relevant site characteristics were available for the 1999-00 and 2000-01 academic years. As described in the previous section, these API scores were produced to better measure the relative academic performance of a site at one point in time, and to assess how a site's performance changes over time. There has been only limited analysis of these API scores in regard to what factors contribute to the overall score achieved at a school.

The goal of this paper is to assist policymakers in their identification and understanding of factors that are related to academic achievement (as measured by the API) at California school sites. To achieve this goal, we provide a multi-prong analysis that determines the relative influence of both controllable and uncontrollable factors on academic achievement. To do this appropriately, we offer in this section a brief review of the academic thinking and previous results behind such an analysis.

Three Lenses for Viewing the Academic Productivity of Schools

As described in *Making Money Matter* (Chapter 5, 1999) – a report prepared by the National Research Council on strategies to better ensure that all U.S. students achieve high levels of learning – at least three different lenses have been used to identify the important relationships that exist between educational resources and academic achievement.

The first lens involves statistical studies that search for an educational production function. The second lens utilizes studies of "effective" educational practices. The third lens looks at the influence of school environment on academic achievement. Each of these approaches is described below.

Education Production-Function Approach

The production-function approach to determine the factors that influence academic achievement is rooted in economic analysis. A single measure of academic achievement (for instance an API score) is considered an output produced at a school site. Researchers usually assume that this output is determined by at least three different categories of inputs: student, social, and school.

Student inputs used to produce academic achievement include the ability and effort of the students themselves. Social inputs include such things as the effort put forth by parents in assisting students in school and the influence of peers that the students associate with. School inputs include traditional measures such as teacher quality, books, and physical characteristics of the site.

Multiple regression analysis is then used to determine the influence that a one-unit change in a given input exerts on the chosen measure of academic achievement.

In production-function analysis, the actual process of transforming education inputs into the desired output is treated as a "black box." The focus is instead on the derived statistical relationships between inputs and output. These relationships represent what an average school in the sample is capable of producing with an additional unit of input. The presumption is that if the average school site can do something with certain effects, then so can others.

Effective Educational-Practices Approach

Alternatively, the effective educational-practices approach to the academic productivity of schools is an explicit attempt to understand the technology of how school inputs are "best" transformed into high academic achievement. This approach begins with the selection of a group of school sites that are unusually successful. Success is usually defined by high academic achievement given the inputs that the site must work with. Surveys, site visits, and focus groups are then used to find and describe the practices that yield the high academic achievement.

This approach is a direct response to a criticism that very little of what has been found to influence academic achievement in the classroom is ever evaluated as an input in the education production-function approach. These typically unmeasured attributes can include curricula, teacher quality, student engagement, and the autonomy of the school site.

One criticism of the effective educational-practices approach to determining successful education practices is that by focusing only on unusually successful outcomes one can never be certain whether the observed practices at the site

caused the high academic achievement, or whether the high academic achievement generated the use of these practices. For example, high-quality teachers may be attracted to schools with high academic achievement, and thus the high-quality teachers do not necessarily cause the high achievement. One way to try to overcome this is to also study the characteristics of teachers at low-performing schools and compare their characteristics to those observed at high-performing schools.

Institutional Approach

Finally, a third lens through which to evaluate the academic productivity of schools is an institutional one. In this approach, the emphasis is on assessing the environment in which a low-performing school operates and determining whether there is something in it that produces academic outcomes that no one really wants.

Here, evaluations on the causes of academic productivity are based on the organizational framework of a school system and school site. The goal is to determine, for instance, whether teachers and administrators are prohibitively constrained in their quest for academic achievement or, alternatively, whether a low-performing school needs merely to slightly realign its institutional structure.

Much of this institutional analysis is the result of the debate between those who advocate allowing greater parental choice in where students may attend school, and those who prefer restricting attendance to the established neighborhood public school.

Results from the Three Lenses

Because of their specific foci, each of the three forms of analyzing academic productivity at school sites has yielded different but equally interesting findings. Highlights of these findings are described below.

Production-Function Findings

A widely cited and debated report, Coleman *et al.* (1966), used the production-function approach to analyze academic productivity, determining that school resources (as they measured them) did not have much of an effect on the academic achievement of students. Instead, the socioeconomic characteristics of the students, their parents, and the neighborhood they lived in were the primary driving forces in determining a school's standardized test scores.

Since then, as reviewed by Hanushek (1996), hundreds more of these production-based statistical studies have been conducted using U.S. data. By just counting the number of statistically significant relationships between input variables and academic achievement; Hanushek finds – 30 years after the

Coleman Report – little evidence to support the contention that purchased school inputs (books, computers, "quality" teachers, etc.) do much to improve the academic achievement of students. However, other researchers such as Hedges *et al.* (1994), dispute Hanushek's findings and offer their own summary analyses of the production-function literature that shows some purchased inputs do influence educational outcomes. The debate on this issue continues, but more recent evidence (see Burtless, 1996) leans toward the conclusion that some forms of purchased educational inputs can raise academic outcomes at a school site.

Effective-Practice Findings

Unlike the production-function literature on what determines academic performance, the literature on effective practice has yielded what could be considered more conclusive and consistent findings. Most of these findings revolve around the success of school-based reforms that focus on methods of classroom instruction and administrative structure.

The terms "capacity building" and "decentralized decision-making" often emerge from this literature as widely observed effective practices. Capacity building usually refers to the professional development of teachers, while decentralized decision-making involves granting some degree of autonomy to a school site and encouraging teacher, parent, and community involvement in the administration of the site.

Particularly relevant to our research are effective practice studies that focus on low-income schools that exhibit relatively high academic test scores. The findings from four of these studies follow.

In *Effective Elements*, commissioned by the California Department of Education, Rossi (2000) reports on effective practices at 18 low-income/high-performing middle and high schools in California. A research team interviewed principals, teachers, and administrators at the selected sites and found four elements that made the identified schools more effective at raising the achievement levels of low-income students. These included:

- Instructional Approaches – A reading emphasis, "out-of-classroom" tutoring, integrated special-support classes, etc.

- School Climate – Full-time persons handled discipline, professional development was encouraged, the principal was given considerable latitude, etc.

- School Community – School accomplishment was stressed, teachers worked in teams, learning goals were shared, etc.

- Parental Involvement – Parental concerns were actively assessed, decision-making was open to parents, etc.

In a similar manner, 12 high-poverty/high-performing California schools were selected to participate in a symposium held December 2000 in Sacramento (see Bell, 2001). Representatives from each school met with school researchers and later participated in shared-learning sessions attended by all. From this, 13 key effective practices were determined:

- Implementation of rigorous standards.
- High quality teaching and learning as the primary goal.
- Emphasis on high expectations, hard work, and persistence.
- Discipline and a safe environment viewed as essential.
- Evidence of district support.
- Strong instructional and ethical leadership by principals.
- Innovation by principals in acquiring needed funding.
- Promotion of shared leadership.
- Collaboration among staff.
- Assessment as a regularly used diagnostic tool.
- Early intervention to promote student learning.
- A policy of inclusiveness and a sense of family.
- School mission extended into homes by working with parents.

A report by Carter at the Heritage Foundation (2000), titled *No Excuses: Lessons from 21 High-Performing, High-Poverty Schools*, used methodology similar to the two previous studies and concluded with seven common traits of this type of school. These included:

- Principals are free to make spending, hiring, and curriculum decisions.
- Measurable goals establish a culture of achievement.
- Master teachers bring out the best in faculty.

- Rigorous and regular testing leads to continuous achievement.
- Achievement is a key to discipline.
- Principals work actively with parents to make homes into learning centers.
- Effort creates ability.

Finally, the *School Improvement Report* released by the U.S. Department of Education (see Cohen and Ginsburg, 2001) surveyed the national literature on effective public school practices and identified seven characteristics of high-performing schools. Although some of these overlap with previously identified elements, they are listed below:

- Academic standards and curriculum designed to achieve.
- Teachers held accountable by principals.
- A safe and orderly environment fostered.
- Instruction time maximized.
- Commitment made by the principal to the school's mission.
- Strong parent and community involvement.
- Flexibility in curriculum and finance design.

Institutional Findings

Institutional research on the relationship between education inputs and academic achievement at public school sites is really an extension of the effective practice findings just discussed. The issue is: Even if we know what effective practices are, can they be implemented or sustained given the institutional environment that U.S. public schools operate in?

Two points of view have emerged in answer to this valid question. One says that there is nothing wrong with a system of public education controlled by policymaking boards and administered in a bureaucracy. High academic achievement can occur within this system if all its parts are correctly "aligned" (see Hill *et al.*, 1997).

Alternatively, skeptics such as Chubb and Moe (1990) argue that real school improvement is hampered by the embedded institutional arrangements in which it is delivered. Parental choice in deciding where a child attends school has been suggested as an alternative institutional arrangement.

Summary

This section of our report has offered a review of the literature on three different ways to analyze the relationship between school inputs and academic achievement. The literature described here is used to craft the research methodology described next and as a base of comparison for results that are reported later.

Section III: Method of Study

As described in the previous section, there already exists a large body of literature on the links between school inputs and the level of average academic performance at a school site. The production-function approach to examining these links concentrates on measurable inputs that usually fall into three broad categories: student, social, and school. The consensus among these production-function-based studies is that student and social inputs – largely out of the control of educators and policymakers – explain more than half of the variation in school scores.

But schools and districts do have greater control over the factors that fall into the school-input category. Studies using the production-function approach have restricted school-input variables to factors such as student/teacher ratio, percentage of teachers holding a credential, per-student money spent on books, etc. Schools also control the way that all inputs are put together to create academic performance as an output. As the effective-practice and institutional literature demonstrates, things like instructional delivery, governance, leadership, teacher accountability, bureaucracy, and choice also matter.

Understanding this, we describe in this section a method of study that attempts to account for how all of these factors contribute to the determination of school site performance in California's public schools. Specifically we concentrate on trying to determine the factors that distinguish a high- from a low-performing school site.

A Three-Step Approach

Our method of study first uses the production-function approach and publicly available data sets to model the measurable determinants of API scores at California elementary, middle, or high school sites in two different years. We then use two variants of the effective-practice approach to assess the other characteristics that distinguish a high-performing elementary, middle, or high school site from a low-performing one. The three steps inherent to this approach are described next.

Step One

At its Web site (www.cde.ca.gov/psaa/api), the CDE offers API test scores for 6,815 different California school sites in 1999-2000, and for 7,193 different school sites in 2000-2001. At this same Web site, selected information is given on various characteristics for each school. Using the production-function approach described in the previous section, many of these characteristics can be thought of as inputs into the process that results in a school's API score.

The first step in our research process is to perform a statistical regression analysis of how various inputs contribute to API scores at a California elementary, middle, or high school site. Considering school-site characteristics included at the CDE web site and breaking them down into the now-familiar student, social, and school categories results in the following classifications:

- Student inputs = f(percentages of students who are African American, Native American, Asian-American, Filipino, Hispanic, Pacific Islander, Caucasian; percentage of students who qualify for reduced-price meals, who are English-language learners, who are first-year attendees [a measure of student mobility]).

- Social inputs = f(average parent-education level).

- School inputs = f(average class size for grades K-3, average class size for grades 4-6, percent of teachers fully credentialed, percent of teachers emergency credentialed, total enrollment, a control for year-round schools).

In classifying these explanatory variables in these three categories, we realize that some of inputs in the student category can also act as proxies for social inputs that influence educational outcomes.

Based on the DOE data we use, “percent of teachers fully credentialed” plus “percent of teachers emergency credentialed” sometimes adds up to greater than 100 percent because the emergency-credential category includes teachers on emergency waivers. These teachers may hold full credentials but be teaching in areas outside their credentialed fields. Excluded categories are percentages of teachers with waivers and those in the university intern, district intern, and pre-intern programs.

It should be noted that the “control for year-round schools” is set equal to one if the year-round program is any of the multiple-track options that are available. These are distinguished by the number of days on/days off and can range in value from 45 days on/15 days off to 90 days on/30 days off (see www.cde.ca.gov/facilities/yearround/calendar.htm). Otherwise this variable equals zero.

In addition, we include as explanatory factors in the API regression analysis controls for differences in the percentage of total students at a school site who took the standardized test. These are measured as:

- Student population tested = f(percent of first-day enrollees tested, percent of first-day enrollees excused due to an individual-education program statement, percent of first-day enrollees excused due to parental written requests).

The regression that is the basis of the first step of our analysis includes the API score in 1999-00 for each available elementary site as the dependent variable. This dependent variable is explained by each of the factors that are included under the student input, social input, school input, and student population tested in the categories listed above. This regression is also repeated using 2000-01 data for elementary sites, and for middle and high school sites for both academic years. A total of six regressions are run.

As recorded in the next section of the paper, the resulting regression findings indicate the association that each separate factor has with a type of average site's API score in a given academic year. Specifically, the regression indicates the percentage effect that a one-unit change in an explanatory variable has on the average California site's (elementary, middle, or high school) API score if other causal factors are held constant. We use these regression results to predict a school's API score in a given year if it had the same input characteristics that it does exhibit, but instead was producing academic achievement (API score) in the same manner as the average site of that type of school in California.

The predicted values of API scores for each school site offer the basis for defining high- and low-performing schools in our study. We calculate our own "performance percentage" for each site for both years by subtracting a site's predicted API score from its actual, dividing this difference by its actual, and multiplying the result by 100. Elementary, middle, and high school sites for each year are then ordered from high to low by comparing these calculated performance percentages.

For each year, the top 5 percent in these ordered lists are defined as high-performing, while the bottom 5 percent are defined as low-performing. This process follows the effective educational practice approach of the past in that these two groups are "unusually" successful or unsuccessful. "Unusual" is used in the sense that they are doing much better or much worse than the average California school site of their type would do if given the same inputs.

As a check to insure that the high- and low-performing designation we assign is not a fluke achieved in only a given year, our final list of these two types of schools only includes schools that appeared as respectively high- or low-performing in both years.

Step Two

The second step in our research methodology involves deeper probes into the types of school inputs that distinguish a high-performing site from a low-performing one. The first probe examines calendar of operation.

An explanatory variable included in regression analysis is whether the school site is on a year-round, multi-track calendar of operation or not. The effect on API score of going to year-round operations in general is calculated by the inclusion of this variable. But the inclusion of this variable offers no assessment of the influence that different types of year-round, multi-track operations (described earlier) have on the likelihood of being designated a high- or low-performing site. Therefore we will look for differences in the types of year-round, multi-track operations between our lists of schools sites.

As provided at the California Department of Education Web site (www.cde.ca.gov/demographics), information is available from the CBEDS School information Form (SIF) for fall of 2000 on whether a school site was operating its year-round operations on a single or multi-track, and the type of calendar (days on, days off, length of school year). In Section V we will look for differences in these measures between designated high- and low-performing schools.

The second probe involves school inputs. An important input into the production of academic achievement is school inputs. A vital subcategory of this broad input is the "quality" of teachers at the school site. In the regression analysis that generated the list of high- and low-performing schools, the only account of this was the percentage of teachers who hold full teaching credentials or who hold emergency credentials.

To further examine differences in the characteristics of teachers at high- and low-performing schools, we look to individual teacher data provided at the California Department of Education's Web site (www.cde.ca.gov/demographics) through the Professional Assignment Information Form (PAIF). Using codes that teachers provided to show where they worked in fall 1998, we aggregate up teacher characteristics for all sites in the high- and low-performing lists. An average measure of variation is then calculated for each relevant teacher characteristic for all high- and low-performing sites at each level of school (elementary, middle, high). We then examine these measures for statistical differences across all high and low-performing sites. Teacher variables that are examined for differences include gender, race/ethnicity, education level, experience, tenured, and type of credential.

In our third and final probe, we address an issue raised by the institutional approach to academic productivity and check whether high-performing school sites are more likely to be neighborhood, "magnet", or "charter" schools. Data on this for a particular school site is also available from the CBEDS School Information Form. The results of all these comparisons are provided in Section V.

Step Three

Important information missing from previous steps one and two are the school community, school climate and the approaches to instruction and parental involvement at the identified high- and low-performing school sites, and whether these differ between the two types of sites. Step three of our research methodology determines this through a survey of school principals at these sites.

The 14 questions included in the survey are designed to find out whether high-performing schools are more likely to follow the practices most often identified in the effective-practice findings cited in the previous section. The method is to give a statement that describes an identified best practice, and to ask the principals if they "agree," "somewhat agree," "somewhat disagree," or "disagree" with the statement. Because it is available nowhere else, we also inquire about the years of experience a principal has at the current site, their total years of experience as a principal, and whether they hold a master's or doctorate degree.

After sorting the returned survey results by type of site (elementary, middle, or high school) and then by high- and low-performing, we look for significant differences in the responses between high- and low-performing schools. That is, are the sites we identified as high-performing more likely to be practicing what have been identified as effective ways to generate academic achievement? If so, then some clear policy recommendations follow.

Section IV: Regression Analysis

As described in the previous section, regression analysis is the first step of the research process used to determine the factors related to academic performance at California's public schools. Important details on regression technique are offered next, while the remainder of this section of the paper offers the specific regression findings, a brief description of what they mean, and the results of predicting API scores and identifying high- and low-performing sites.

Regression Details

Before the regression was performed, site data from 1999-00 and 2000-01 were sorted into the three categories of elementary, middle, and high schools. Also, a school site's API score was transformed to its natural log form. There are two reasons for this transformation. The primary one is that such a transformation allows an explanatory variable to exert a non-linear influence on API score.

Without a log transformation of the dependent variable, the regression findings could only indicate the unit change in API score given the unit change in a respective explanatory variable. With a log transformation, the regression results indicate the percentage change in API score given a unit change in an explanatory variable. Based upon previous production function findings, allowing for such a non-linear approach better characterizes the way that inputs influence the production of academic achievement at school sites.

The second reason for taking the natural log of the regression's dependent variable is that it has been shown to reduce the bias in regression findings that can arise when there is great variation in the scale of operation (number of students) at school sites. Statisticians refer to this as heteroskedasticity and it much less likely to be an issue in our findings.

Regression Findings

The regression coefficients for elementary, middle, and high schools, for the years 1999 and 2000, are in the Appendix's Table A1 and A2. The top entry in each cell of the table, if multiplied by 100, indicates the percentage influence that a one-unit change in the explanatory variable has on API score if the other included causal factors are held constant. Only the entries with asterisks next to them should be considered as exerting an effect that is statistically different from zero.

Most of the explanatory variable descriptions in the first column of Tables A1 and A2 are self-explanatory. The exceptions may be (1) average parent education level x 10, (2) dummy (or control factor) if year-round school, (3) average class size, and (3) total enrollment in hundreds.

"Average parent education level x 10" is the average of all the student-reported parent-education levels at a school multiplied by 10 for only a scaling factor. A value of 10 is recorded if students believed parents had less than high school education, 20 if high school, 30 if some college, 40 if college graduates, and 50 if some graduate school. The average value of this variable for elementary sites in both 1999 and 2000 was 27.4.

"Dummy if a year-round school" is an explanatory variable equal to one if the school is under a year-round, multi-track academic calendar and zero if it is not. This explanatory variable measures the influence of a school going to this general type of year-round operations if all of the other explanatory variables are held constant.

Average class size is only used as an explanatory variable in the regressions for elementary schools and measures the average number of students in the site's grade K-3 and grade 4-6 classrooms. In 1999 (2000), the respective average values of this variable were 19.32 (19.32) and 28.94 (28.91).

Total enrollment in hundreds is just the total number of students at a site measured at the scale of a hundred. In 1999 (2000), the average value of this variable for all elementary sites was 4.42 (4.40). The average for high school sites was the expected larger 13.91 (13.58).

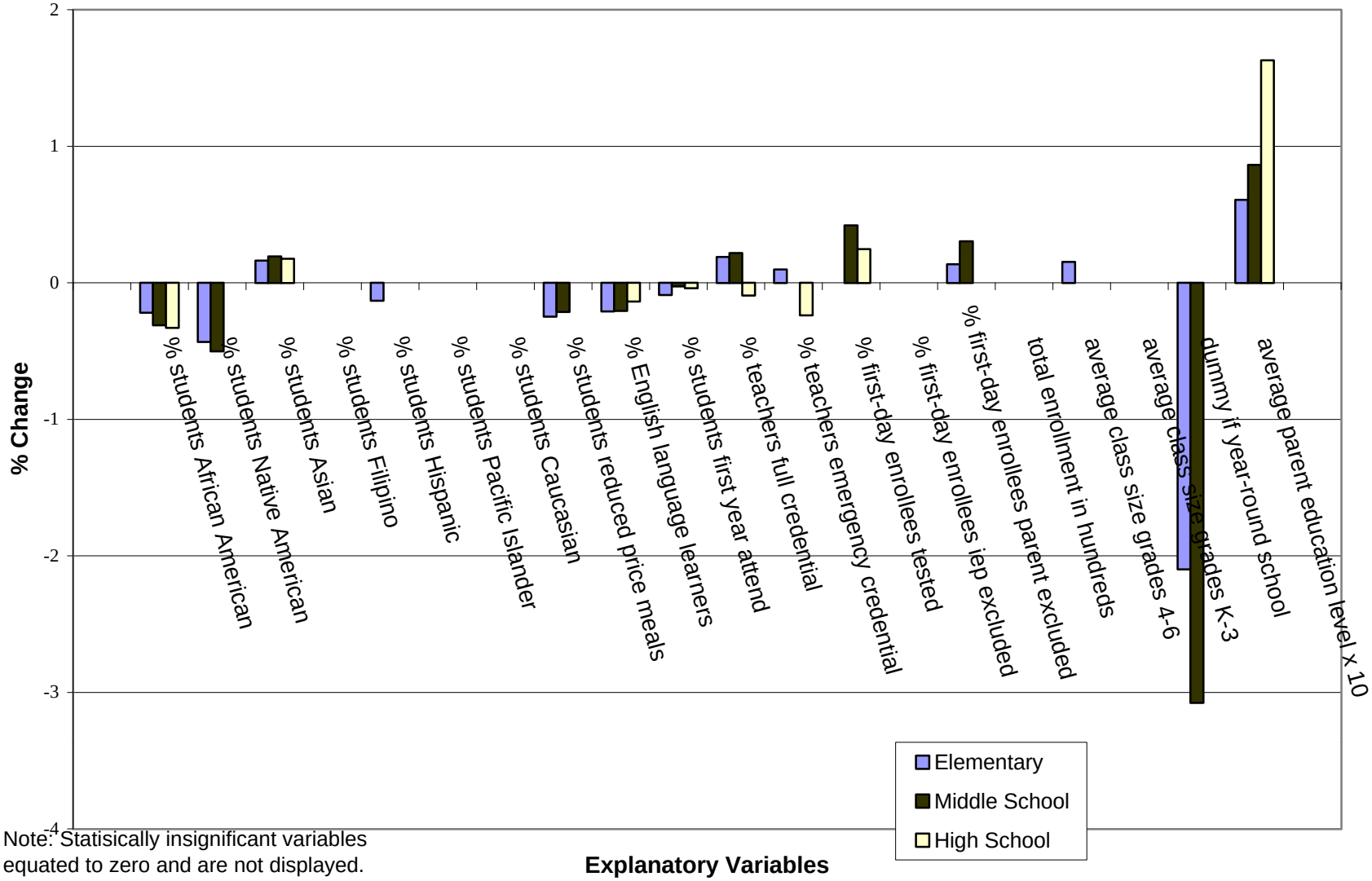
Offered below, Figures 1 and 2 provide a visual way in which to interpret these first stage regression findings. The relative magnitudes of the effect of all the variables measured in percentage terms (with a "%" included in first part of name) are directly comparable.

Most of the regression findings are in line with results reported in earlier production function studies of education output and correspond to expectations. Some differences worth noting in **both** the 1999 and 2000 samples are:

- A one-student **increase** in the average numbers of children in an elementary site's grades 4-6 classrooms resulted on average in about a 0.10 to 0.15 percent **increase** in the site's API. (Think about this in the sense that two elementary sites are identical in respect to all of the explanatory variables included in the regression analysis. If one of the sites increases by one its average number of students per classroom in grades 4-6, and holds other factors constant, this regression result indicates that in the average California school the average API score will rise by 0.10 to 0.15 percent from where it was before.) This result cannot be compared to the similar regression results that DOE (2000) produced because they chose to not include any measures of class size in their elementary school regression (see p. 24).

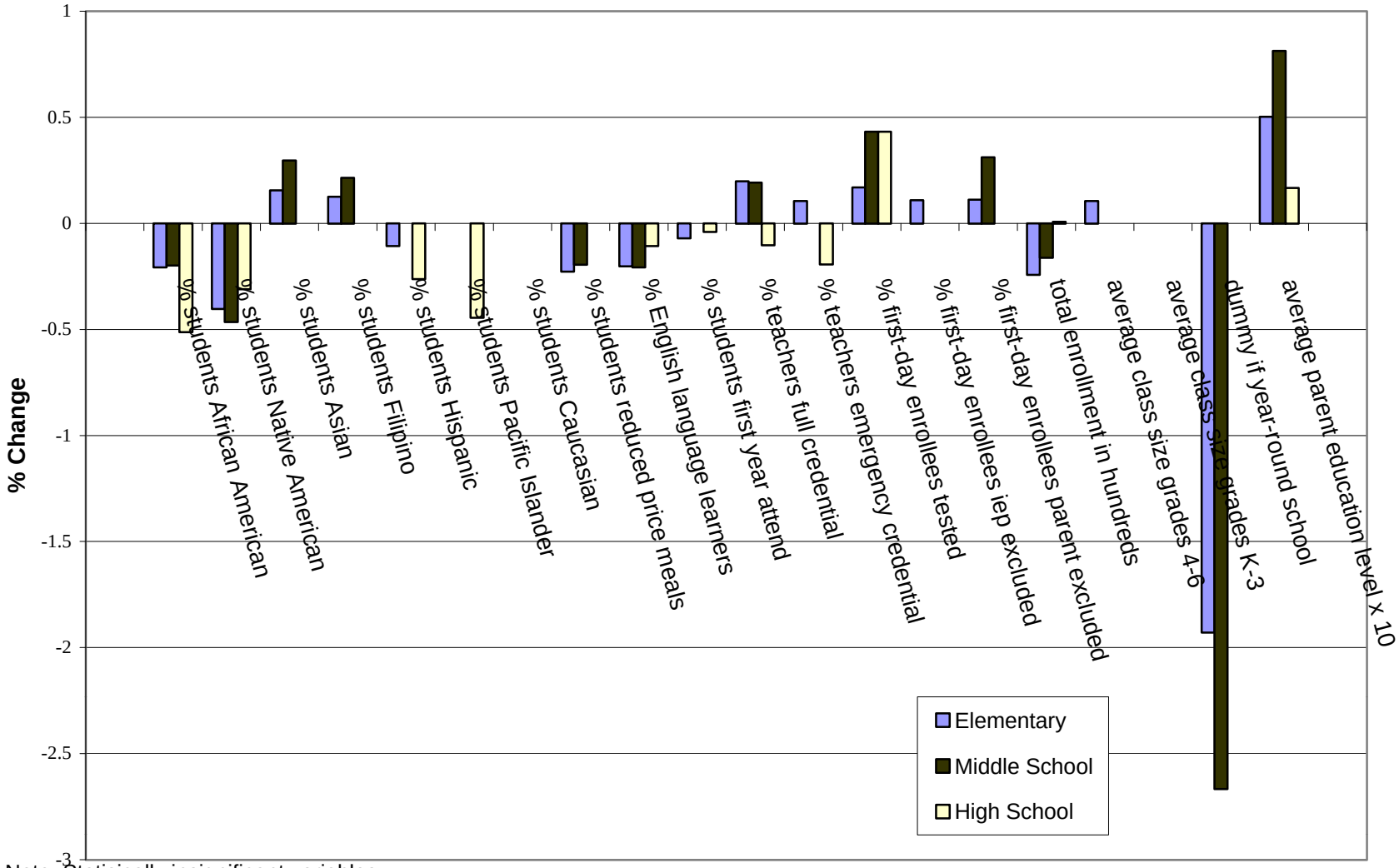
- A one-percent **increase** in the percentage of a high school's teachers who have full credentials, holding other factors constant, results in about a 0.1

Figure 1
% Change in 1999 API Score Resulting From One Unit Change in Explanatory Variables



Note: Statisically insignificant variables equated to zero and are not displayed.

Figure 2
% Change in 2000 API Score Resulting From One Unit Change in Explanatory Variables



Note: Statisically insignificant variables equated to zero and are not displayed.

Explanatory Variables

percent **decrease** in the site's API. Both of the credential results derived here cannot be compared to DOE (2000) regression findings because the department chose to combine the credential variables into one that represented the percentage of fully credentialed teachers less the percentage of teachers with emergency credentials. Their reason for doing this, not entirely clear in our minds, is offered on p. 11 of the DOE report.

- A one-percent **increase** in the percentage of an elementary site's teachers who hold emergency credentials, keeping other factors constant, results in about a 0.1 percent **increase** in the site's API.

The reader needs to take care in attaching any major significance to these three counterintuitive findings for three reasons. The first is that they may be due to our regression model, constrained by available data that does not include all of the relevant factors important to explaining differences in API scores. Such "omitted variable bias" can yield regression coefficients different than expected. In addition, the magnitudes of these three effects are so small (a 1 percent increase in any of these explanatory variables yields only around a 0.1 percent increase in average API score) that for practical purposes the effect may be best considered zero.

Predicting an Expected API Performance Index

We have generated these regressions to primarily predict a school site's API score in a given year if it produced its API score in the same manner as the average elementary, middle, or high school with the inputs we included.

This is accomplished for each school site, for each of the two years under consideration, by taking the actual data for the explanatory variables in the regressions and multiplying them by the appropriate regression coefficients. The resulting values, for a specific site in a given year, are then summed together and a predicted API score is attained for each site.

A "performance percentage" is then calculated for each site by subtracting its predicted score from its actual score and dividing this difference by its actual score. This value, multiplied by 100, indicates in percentage terms how much better (if positive value) or worse (if negative value) a site did than it was predicted to do. This performance percentage is sorted from high to low for each year for each type of site. The top 5 percent are identified as high-performing, while the bottom 5 percent are low-performing. If a school site is classified as high- or low-performing in both the school years that begin in 1999 and 2000, then it is included in our final samples of these kinds of sites.

Table A3 in the Appendix contains a list of the 141 elementary schools considered to be high-performing. Table A4, also in the Appendix, offers a list of 120 elementary schools considered low-performing. Tables A5 and A6 do the

same for 36 high-performing middle school sites and 33 low-performing ones. Tables A7 and A8 provide the 24 top high schools and 17 bottom ones.

In addition, Tables A3 through A8 sort the high- and low-performing schools by the performance percentage calculated from the 2000 API actual and predicted scores. What is valuable about this methodology is that it is not based on the level of a site's API score. What is important is how much better or worse a school did compared with what our methodology predicted it should do.

For instance, in Table A3, Heninger Elementary achieved an API score of only 537 in 2000, but its predicted score was 15.3 percent lower at about 466. Neutra Elementary, in our same group of top 5 percent performing elementary schools, scored an API of 833 in 2000, but was only predicted to achieve the 14.1 percent lower score of 730.

Summary

Regression analysis yields the average expected influence of an explanatory variable on a dependent variable holding the values of other explanatory variables constant. Though these regression results in large part conform to previous studies like this, the intent of running them is not to derive specific policy implications from the discovered effects of school inputs. The regression results described above are instead used to predict the expected API of a school if it maintained its current characteristics, but was instead using a production process like the average California school of its type (elementary, middle, or high). These predictions form the basis of designating certain schools as high- or low-performing. Such a designation is a key component of the remainder of the analysis that does reveal specific policy implications.

In the next section of this paper we utilize the lists of schools designated as high- and low-performing to compare differences in available data between these types of schools based on teacher characteristics and type of year-round program, and whether they are neighborhood schools or not.

Section V: Other Available Characteristics

In this section of the report we continue our examination of site characteristics that are distinctly different between samples of what has been determined to be top- and bottom-performing California public schools. The focus here is on differences in the characteristics of teachers at these two types of sites, differences in the type of year-round operations adopted at these two types of schools, and whether there is any support for the contention that high-performing school sites are more likely to be "magnet" or "charter" schools.

As described earlier, the motivation to look for differences in teacher characteristics, year-round operation choices, and magnet/charter status comes from the theory that the average academic performance measured at a school site is generated through an education production process in which school inputs play a very important role. In the first stage (regression) of our research, we accounted for some of these school inputs by controlling for whether a school is year-round and multi-track, the average class size for grades K-3 and for grades 4-6, and the percentages of teachers with full and emergency credentials. In this section we look to see if some previously unaccounted for measures of other school inputs vary in observed occurrence between top- and bottom-performing schools.

Teacher Characteristics

In the 1996 report, *What Matters Most: Teaching for America's Future*, the National Commission on Teaching and America's Future began its analysis with simple premises that are widely accepted in both the education and policy community (p. 6):

- *What teachers know and can do is the most important influence on what students learn.*

- *Recruiting, preparing, and retaining good teachers is the central strategy for improving our schools.*

In Tables 1, 2, and 3 provided below, we attempt to test the premises listed above by looking for observable differences in the characteristics of teachers in our high- and low-performing samples of elementary, middle, and high schools. These figures offer information on nearly all of the characteristics that are recorded in the California Department of Education's PAIF. The reported values fall into the general categories of gender, ethnicity, education level, teacher experience, teacher status, type of staff, full time/part time, teacher credential status, and type of special credential.

Table 1: Selected Elementary Schools - - Teacher Demographics Summary

High Performing N = 141
Low Performing N = 120

* = Statistical difference

Gender	% Female	% Male					
Avg. High Perf. Schools	83.9%*	15.3%*					
Std. Dev.	(7.3%)	(7.3%)					
Avg. Low Perf. Schools	79.1%*	20.9%*					
Std. Dev.	(9.3%)	(9.3%)					
Ethnicity	% NA	% AS	% PI	% FI	% LA	%AA	% WH	% Other
Avg. High Perf. Schools	0.4%*	9%*	0.1%*	1.3%	16.4%*	10.9%	61.5%	1.1%
Std. Dev.	(1.1%)	(12%)	(0.5%)	(3%)	(13.6%)	(18.4%)	(24%)	(2.3%)
Avg. Low Perf. Schools	0.9%*	4.5%*	0.3%*	1.2%	22.7%*	9.5%	60.2%	0.7%
Std. Dev.	(1.7%)	(4.9%)	(1.1%)	(2.4%)	(18.7%)	(15.6%)	(23.5%)	(1.8%)
Education Level	% Ph.D.	% M.A. +	% M.A.	% B.A. +	% B.A.	% < B.A.		
Avg. High Perf. Schools	0.7%	12.6%	17.9%*	41.8%*	25.3%*	0.3%		
Std. Dev.	(1.5%)	(11.4%)	(16%)	(20.6%)	(6.2%)	(1.3%)		
Avg. Low Perf. Schools	0.8%	12.4%	10.4%*	53.8%*	21.4%*	0.4%		
Std. Dev.	(1.5%)	(8.6%)	(9.2%)	(24.8%)	(19.1%)	(3.2%)		
Teacher Experience	Avg. # of Yrs. Teaching in Specific School	Avg. # of Yrs. Teaching in District		**Teacher Status**		% Long Term Sub.	% Prob.	% Tenured
Avg. High Perf. Schools	12.04*	22.23*		Avg. High Perf. School		12.6%*	6.9%	18.1%
Std. Dev.	(3.37)	(9.1)			Std. Dev.	(17.9%)	(11%)	(12.9%)
Avg. Low Perf. Schools	11.41*	19.84*		Avg. Low Perf. School		8.4%*	9.2%	20.2%
Std. Dev.	(2.6)	(7.67)			Std. Dev.	(12%)	(13.3%)	(14%)
Full Time / Part Time Staff	% Full Time	% Part Time		**Type of Staff**		% Admin	% Pupil	% Teacher
Avg. High Perf. Schools	95.5%*	3.7%*		Avg. High Perf. School		4.9%	2.3%	92.9%
Std. Dev.	(5.4%)	(5.4%)			Std. Dev.	(3.3%)	(3.8%)	(3%)
Avg. Low Perf. Schools	97.4%*	2.6%*		Avg. Low Perf. School		5.2%	2.0%	93.6%
Std. Dev.	(5.1%)	(5.1%)			Std. Dev.	(2.6%)	(2.9%)	(3.6%)
Teacher Credential Status	% Full Cred.	% Emer. Cred.	% Elem. Cr.	% WVR	% UI	% DI	% PIN	
Avg. High Perf. Schools	79.8%	14.6%	92.1%*	1.0%	2.2%*	1.3%	2.2%*	
Std. Dev.	(17.3%)	(15.0%)	(7.9%)	(2.4%)	(4.0%)	(2.6%)	(4.0%)	
Avg. Low Perf. Schools	82.5%	13.0%	86.9%*	1.4%	3.2%*	1.4%	3.2%*	
Std. Dev.	(14.8%)	(9.9%)	(16.3%)	(2.3%)	(5.3%)	(3.4%)	(5.3%)	
Type of Special Credential	% Special Ed.	% Read	% BCC	% ELD	% SDAIE			
Avg. High Perf. Schools	11.7%	2.4%	16.8%	30.4%	9.5%*			
	(10%)	(3.3%)	(21.4%)	(25.6%)	(13.6%)			
Avg. Low Perf. Schools	10.6%	2.7%	19.8%	32.4%	7%*			
	(8%)	(3.5%)	(26.1%)	(32.8%)	(8.8%)			

Key

LA: Latino	PI: Pacific Islander	Prob: Probationary	UI: University Intern	Read: Reading Specialist
AS: Asian	AA: African-American	Pupil: Pupil Services Staff	DI: District Intern	BCC: Bilingual Credential
WH: White	NA: Native American		PIN: Pre-Intern	ELD: English Language Development
FI: Filipino			WVR: Waiver	SDAIE: Spec. Desig. Acad. Instr. in English

Table 2: Selected Middle Schools - - Teacher Demographics Summary

High Performing N = 36
Low Performing N = 33

* = Statistical Difference

Gender	% Female	% Male
Avg. High Perf. Schools	59.2%*	40.3%*
Std. Dev.	(10.3%)	(10.4%)
Avg. Low Perf. Schools	54.3%*	44.8%*
Std. Dev.	(11.2%)	(10.4%)

Ethnicity	% NA	% AS	% PI	% FI	% LA	% AA	% WH	% Other
Avg. High Perf. Schools	0.7%	5.2%*	0.2%	1.3%	10.8%	11.1%	69.4%	1.3%
Std. Dev.	(1.3%)	(6.4%)	(0.8%)	(1.8%)	(11.0%)	(19.4%)	(22.2%)	(2.0%)
Avg. Low Perf. Schools	1.2%	3%*	0.3%	0.7%	13.6%	12.4%	68.0%	0.8%
Std. Dev.	(1.8%)	(4.2%)	(0.8%)	(1.3%)	(8.9%)	(20.3%)	(21.2%)	(2.6%)

Education Level	% Ph.D.	% M.A. +	% M.A.	% B.A. +	% B.A.	% < B.A.
Avg. High Perf. Schools	1.7%*	17.7%	21.7%*	39.7%*	19.0%	0.1%*
Std. Dev.	(2.0%)	(10.9%)	(16.2%)	(16.7%)	(12.7%)	(0.4%)
Avg. Low Perf. Schools	0.8%*	20.1%	14.3%*	74.9%*	31.9%	2.8%*
Std. Dev.	(1.3%)	(24.3%)	(17.2%)	(88.2%)	(44.8%)	(8.4%)

Teacher Experience	Avg. # of Yrs. Teaching in Specific School	Avg.# of Yrs. Teaching in District
Avg. High Perf. Schools	13.58	11.24*
Std. Dev.	(3.49)	(2.95)
Avg. Low Perf. Schools	12.3	9.94*
Std. Dev.	(3.17)	(2.99)

Teacher Status	% Long Term Sub.	% Prob.	% Tenured
Avg. High Perf. Schools	13.7%	18.0%	62.3%
Std. Dev.	(15.8%)	(12.6%)	(15.2%)
Avg. Low Perf. Schools	8.5%	14.3%	62.9%
Std. Dev.	(11.3%)	(17.4%)	(16.7%)

Full Time / Part Time Staff	% of Full Time	% Part Time
Avg. High Perf. Schools	94.0%	4.3%*
Std. Dev.	(4.3%)	(4.3%)
Avg. Low Perf. Schools	94.2%	1.8%*
Std. Dev.	(2.9%)	(2.9%)

Type of Staff	% Admin	% Pupil	% Teachers
Avg. High Perf. Schools	6.6%	4.9%	90.8%*
Std. Dev.	(3.0%)	(4.4%)	(3.4%)
Avg. Low Perf. Schools	8.3%	6.2%	83.9%*
Std. Dev.	(4.8%)	(4.6%)	(5.4%)

Teacher Credential Status	% Full Cred.	% Emer. Cred.	% WVR	% UI	% DI	% PIN
Avg. High Perf. Schools	78.1%	17.2%*	1.5%*	1.6%	0.8%	1.8%
Std. Dev.	(17.1%)	(15.5%)	(1.8%)	(3.2%)	(1.6%)	(3.3%)
Avg. Low Perf. Schools	79.1%	27.9%*	3.1%*	2.8%	0.5%	2.0%
Std. Dev.	(14.0%)	(32.5%)	(3.4%)	(2.9%)	(1.1%)	(3.3%)

Type of Special Credential	% Read	**%** English	% Math	% Life Sc.	% Phy. Sc.	% Soc. S.	% Sp. Ed	% BCC	% ELD	% SDAIE
Avg. High Perf. Schools	2.7%*	18.5%	12.6%	10.4%	7.5%	20.1%	12.2%	7.1%*	15.7%*	5.4%
	(3.2%)	(8.1%)	(5.6%)	(4.6%)	(5.0%)	(8.8%)	(6.9%)	(9.7%)	(12.4)	(9.2%)
Avg. Low Perf. Schools	1.2%*	19.7%	12.3%	8.8%	5.7%	20.0%	12.7%	3.7%*	23.2%*	5.8%
	(2.5%)	(6.8%)	(6.0%)	(6.1%)	(4.8%)	(9.4%)	(5.9%)	(6.4%)	(18.1%)	(9.2%)

Key

LA: Latino
AS: Asian
WH: White
FI: Filipino
PI: Pacific Islander
AA: African-American
NA: Native American
Prob: Probationary
Pupil: Pupil Services Staff
UI: University Intern
DI: District Intern
PIN: Pre-Intern
WVR: Waiver
Read Spec: Reading Specialist
BCC: Bilingual Credential
ELD: English Language Development
SDAIE: Spec. Desig. Acad. Instr. in English

Table 3: Selected High Schools - - Teacher Demographics Summary

High Performing N = 24
Low Performing N = 17

* = Statisitical Difference

Gender	% Female	% Male					
Avg. High Perf. Schools	48.5%	45.7%*					
Std. Dev.	(10.8%)	(11.9%)					
Avg. Low Perf. Schools	44.6%	55.1%*					
Std. Dev.	(7.1%)	(7.2%)					
Ethnicity	% NA	% AS	% PI	% FI	% LA	% AA	% WH	% Other
Avg. High Perf. Schools	0.9%	6.1%*	0.2%	0.6%	9.5%	10.9%	71.3%	0.5%
Std. Dev.	(1.3%)	(5.7%)	(0.5%)	(1.4%)	(8.1%)	(14.4%)	(21.2%)	(0.9%)
Avg. Low Perf. Schools	1.2%	3%*	0.1%	0.9%	12.0%	8.2%	73.7%	0.8%
Std. Dev.	(1.7%)	(3.1%)	(0.3%)	(1.4%)	(8.1%)	(12.6%)	(18.5%)	(1.5%)
Education Level	% Ph.D.	% M.A. +	% M.A.	% B.A. +	% B.A.	% < B.A.		
Avg. High Perf. Schools	2.6%	18.2%	24.1%	36.8%	15.7%	1.0%		
Std. Dev.	(3.5%)	(12.6%)	(15.2%)	(21.8%)	(9.8%)	(1.9%)		
Avg. Low Perf. Schools	1.6%	17.4%	18.4%	43.2%	18.4%	0.6%		
Std. Dev.	(1.8%)	(9.3%)	(9.4%)	(18.8%)	(13.6%)	(1.7%)		

Teacher Experience	Avg. # of Yrs Teaching in Specific School	Avg.# of Yrs Teaching in District	**Teacher Status**		% Long Term Sub.	% Prob.	% Tenured
Avg. High Perf. Schools	14.59	11.65	Avg. High Perf. School		6.4%	18.3%	67.2%
Std. Dev.	(3.99)	(3.80)		Std. Dev.	(7.1%)	(13.4%)	(13.2%)
Avg. Low Perf. Schools	13.56	11.24	Avg. Low Perf. School		3.4%	17.5%	69.5%
Std. Dev.	(2.66)	(2.40)		Std. Dev.	(6.5%)	(13.7%)	(14.0%)

Full Time / Part Time Staff	% of Full Time	% Part Time	**Type of Staff**		% Admin	% Pupil	% Teachers
Avg. High Perf. Schools	93.2%*	6.8%*	Avg. High Perf. Schools		8.6%	9.3%	88.8%
Std. Dev.	(7.2%)	(7.2%)		Std. Dev.	(6.8%)	(8.4%)	(3.1%)
Avg. Low Perf. Schools	97.8%*	2.2%*	Avg. Low Perf. Schools		8.6%	6.6%	89.0%
Std. Dev.	(3.1%)	(3.1%)		Std. Dev.	(2.9%)	(2.7%)	(2.7%)

Teacher Credential Status	% Full Cred.	% Emer. Cred.	% WVR	% UI	% DI	% PIN		
Avg. High Perf. Schools	90.9%*	9.1%*	0%*	0%*	0%*	0%*		
Std. Dev.	(10.7%)	(9%)	(2.9%)	(2%)	(0.7%)	(1.6%)		
Avg. Low Perf. Schools	82.6%*	13.6%*	1.4%*	2.2%*	0.7%*	2.2%*		
Std. Dev.	(9.6%)	(6.9%)	(1.8%)	(2.7%)	(1.0%)	(3.1%)		

Type of Special Credential	% Read	% English	% Math	% Life Sc.	% Phys S.	% Soc S.	% Sp. Ed.	% BCC
Avg. High Perf. Schools	0.7%	24.0%	14.5%	10.9%	9.9%*	22.3%	7.5%*	6.9%
	(1.1%)	(7.1%)	(5.5%)	(4.1%)	(3.8%)	(7.6%)	(5.9%)	(8.3%)
Avg. Low Perf. Schools	1.2%	21.3%	14.0%	10.7%	7.6%*	21.1%	10.3%*	7.7%
	(1.3%)	(6.9%)	(4.6%)	(4.7%)	(2.9%)	(6.8%)	(4.2%)	(12.7%)

Key

LA: Latino
AS: Asian
WH: White
FI: Filipino

PI: Pacific Islander
AA: African-American
NA: Native American

Prob: Probationary
Pupil: Pupil Services Staff

UI: University Intern
DI: District Intern
PIN: Pre-Intern
WVR: Waiver

Read: Reading Specialist
BCC: Bilingual Credential
ELD: English Language Development
SDAIE: Spec. Desig. Acad. Instr. in English

In Tables 1, 2, and 3, an asterisk is included next to values that exhibit a statistically significant difference (at the 90 percent confidence level) between high- and low-performing schools. As is appropriate, we only consider statistically significant differences to be relevant for further discussion.

For both elementary and middle schools, the samples of high-performing schools exhibit a greater percentage of female teachers and a lower percentage of male teachers than the samples of low-performing schools. Among high schools, low-performing schools have a significantly greater percentage of male teachers than high-performing schools. In addition, high-performing sites at all grade levels exhibit a greater percentage of teachers of Asian heritage, and smaller percentages of teachers of Pacific Islander and Latino heritage. It is difficult to draw any policy implications from these findings. For instance, male, Latino, and Pacific Island teachers could be attracted to low-performing schools for reasons of wanting to assist them rather than the alternative causation of these types of teachers negatively influencing test outcomes.

There may be policy implications to be drawn from the fact that high-performing elementary schools are more likely than low-performers to have teachers who have completed bachelor's or master's degrees, and high-performing middle school sites have a greater percentage of teachers who have completed master's degrees or doctorates. (Teachers participating in internship and waiver program can not have a bachelor's degree.)

The percentage of teachers who have completed degrees is larger at high-performing sites. We stress "completed" because the percentage of teachers who have education credits beyond a bachelor's degree, but have not yet completed a master's degree, is actually greater at low-performing schools than high. The reason for this could be twofold. The personal motivation that causes a teacher to finish a master's degree once begun may also signal a teacher more adept at producing academic performance in the classroom. Alternatively, the finding could just reflect the "difficulties" that teachers confront at low-performing schools that make it harder for them to finish their graduate degrees. Also note that high-performing middle schools have fewer teachers who have not completed a bachelor's degree than their low-performing counterparts.

The average level of teaching experience, both at a teacher's current school site and in the district, also appears to play a role in the determination of a high-performing elementary school. The number of years teaching in the district averaged 22.2 for teaching staff at high-performing elementary sites as compared to 19.8 for low-performing elementary sites. There was also a difference worth noting between the 11.2 years of average district experience observed in top middle schools and the 9.9 observed at the bottom.

An extremely interesting finding pertaining only to elementary sites is that on average nearly 13 percent of the faculty at high-performing places were long-

term substitute teachers, while this value only averaged 8.4 percent at low-performing sites. This may be due to the flexibility that part-time hires can provide principals in shaping a teaching staff the principals believe could best achieve high academic standards. We further test this hypothesis in the survey stage of our analysis.

There are significant differences in the percentages of teachers considered full- and part-time at the top and bottom school sites in California. On average, only about 2 percent of teachers at low-performing high schools were part-time, while about 7 percent of the teaching staff at high-performing high schools were part time. There were also similar significant differences in part-time staff observed at high- and low-performing elementary and middle school sites. Clearly there is evidence that top-performing California schools exhibit a more flexible teaching staff, through the use of more long-term substitutes and part-timers, than low-performing ones.

Most of the information in Tables 1 through 3 is calculated based upon data gathered only for teachers at a school site. The exception to this rule is the figures given for staffing differences (in regard to the percentages of employees at a site who are teachers, pupil-service staff, and administrators) at high- and low-performing schools. Interestingly, the only differences in staffing were found for middle school sites. On average, nearly 91 percent of the employees at high-performing middle schools were teachers. This compared to an average value of 84 percent observed at low-performing middle schools.

Moving on to measuring differences in the credential status of teachers at our high- and low-performing sites, we also report the average percentage of full and emergency credential teachers. Even though these factors were controlled for in the process that yielded a site's predicted API score, we wanted to check whether there were any observable differences in these often-cited causal measures between the top and bottom 5 percent of schools. There was no observed difference at elementary sites, but there were fewer emergency-credential teachers at the high-performing middle and high schools. This likely indicates that the presence of emergency-credential teachers at the worst-performing sites exerts a negative influence that is even greater than the average negative influence picked up in the regression analysis for all high schools.

Finally, an examination of differences between credential waivers and other types of credentials at high- and low-performing sites offers some support for the widely accepted notion that the credential status of teachers matters in the production of high academic achievement. Take note, however, that although there are some percentage differences relating to credential status, their order of magnitude is not that large. Remember that a 1 percent difference in the number of teachers holding a certain credential at a site employing 100 teachers translates into only one more teacher with that credential.

Just over 92 percent of the teachers at high-performing elementary sites, on average, hold an elementary teaching credential. This compares to an average of about 87 percent holding the same credential at low-performing elementary sites. Though the magnitude of difference is not as large, top elementary sites also have fewer university interns, fewer pre-interns, and more teachers who hold a credential in specially designated academic instruction in English (SDAIE).

Nearly double the percentage of teachers hold a bilingual credential (7.1 percent) at high-performing middle schools as the percentage (3.7 percent) that hold the same credential at low-performing middle schools. Other differences at middle schools, though not as large, are that high-performing ones have fewer teachers on a credential waiver and more teachers with a reading credential. Interestingly, these same high-performing middle schools also have fewer teachers with an English language development credential (ELD).

Among the elementary, middle, and high school sites, the greatest differences among high- and low-performing credential measures occur at high schools. High-performing high school campuses exhibit a smaller percentage of credential waivers, university interns, district interns, and pre-interns. When considering type of special credential, high-performing high schools were found to have more teaching staff with a physical science credential and fewer with a special education credential.

Type of Year-Round Operations

Recall from the regression analysis that, holding other explanatory factors constant, an elementary or middle school on multi-track, year-round operations exhibits an average API score that is 2 to 3 percent lower than one on a standard calendar. Upon finding this, and knowing that some policymakers in California have advocated switching to year-round operations as a way to improve the academic performance of low-scoring schools, we decided to investigate if type of year-round, multi-track operation makes a difference.

Using the CBEDS School Information Form for fall 2000, we checked whether sites in our chosen high- and low-performing samples were operating year-round and, if so, the type of calendar used to conduct the year-round operation. The only statistically significant distinctions between high- and low- performing schools of a certain type occurred for elementary schools. This is likely due to the larger number of school sites in these samples (141 high-performing and 120 low-performing) and the greater percentages of these elementary sites that have gone to a year-round calendar (about 46 percent of the high-performing and 47 percent of the low-performing).

The statistically different findings for top and bottom elementary sites are as follows:

- Low-performing elementary schools are more likely to be on a 90-day instruction/30-day vacation calendar than high-performing sites: 34 percent all low-performing sites and only 13 percent of high-performing. Low-performing elementary schools are also more likely to adopt a "Concept 6" calendar (81 days instruction/ 43 days vacation) than high-performing sites: 30 percent low-performing schools and 10 percent of high-performing schools. These tracks, characterized by long instruction periods and long vacations, are more likely to have been adopted to make maximum use of the available facilities and are usually in place for reasons other than a desired improvement in pedagogy.

- In addition, 36 percent of all high-performing schools have adopted a 60/20 year-round calendar (60 days on/20 days off), while 14 percent of these high performers use a custom year-round calendar (less than 8 weeks on). The comparable rates of adoption for low-performing schools are respectively less at 15 percent and 2 percent.

Thus, at least for elementary schools, there is some relationship between falling into the high-performance category and adopting a year-round schedule that has shorter periods of time on and off.

The obvious policy recommendation is that a switch to year-round operations will likely not exert a positive influence on a school site's academic performance unless it is tailored to have short breaks between instruction periods. This finding is not surprising since advocates of year-round education insist its benefits occur through minimizing the time away from the classroom during school vacations.

Magnet and Charter Schools

The California Department of Education defines a magnet school as one designed to attract students away from their neighborhood school of residence. Such a school exists within a school district and operates under the same rules and financing constraints as other public schools in the district, but follows a unique curriculum theme or instructional mode.

A charter school is a public school formed through the initiative of teachers, parents, community leaders, and/or a community-based organization. In California, a local public school board or county board of education usually sponsors a charter school. Goals and operating procedures must be specified in a detailed "charter" between the sponsoring board and organizers. Except where noted by law, charter schools are exempt from most state laws governing school districts. Charter schools may not charge tuition and their admission practices cannot discriminate against pupils based on ethnicity, origin, gender, or disability.

The reason we look for the prevalence of these two types of schools among our derived samples of high- and low-performing schools is to test whether the

institutional form that a public school operates in exerts an influence on its ability to transform given inputs into academic productivity. That is, holding the production factors (student inputs, social inputs, school inputs, and student population tested) contained in the regression analysis constant, is there any indication that there is a greater prevalence of magnet or charter schools in the high-performance group?

As shown in Tables A3 through A8 in the Appendix, in the column labeled "Special Type," 13 high-performing elementary schools are magnets, while there are only four low-performing magnet elementary schools. This translates into a statistically significant difference of about 9 percent of high-performing schools being magnet schools, while only three percent of low-performing schools are. Along the same lines, six out of the 36 high-performing middle schools are magnets (17 percent), while only three out of the 33 low-performing middle schools are magnets (9 percent). This again represents a statistically significant difference.

The evidence points to a slightly greater likelihood of charter schools in the low-performing sample for both elementary and middle schools, though this likelihood is not statistically significant.

Summary

This section has detected some notable differences in teacher characteristics, type of year-round school, and magnet designation between our samples of high- and low-performing schools. In the final section of this report, we draw some policy conclusions from these findings. In the next section we describe the survey of school principals used to determine further differences in these high- and low-performing schools.

Section VI: Survey of School Principals

As described earlier, information relevant to determining what causes differences in academic performance was also gathered through a survey of principals at the 371 schools listed in the Appendix. We designed the survey to look for differences in the instructional practices, school climate, school community, and parental involvement approaches that are practiced at the designated high- and low-performing sites. In this section we briefly describe the survey method, our analysis of the survey results, and findings relevant to why schools with many of the same characteristics perform so differently on standardized tests.

Survey Method

Copies of the survey and accompanying letter sent to school principals are contained in the Appendix. To reduce the burden such a survey could impose on principals, and thus the likelihood of completion, we purposefully limited the questionnaire to the back and front of one 8 ½ " x 11" page. Along with background information, education and experience questions, and one open-ended question, this left room for 14 questions. These questions were designed to capture as many as possible of the "best" or "effective-practice" principals listed earlier in Section II. We also took care to insure that each question asked about only a single best practice.

The 14 best-practice questions on the survey are in the form of statements with which that the principal is asked to "disagree," "somewhat disagree," "somewhat agree," or "agree." To encode these responses, disagree is assigned a value of one, somewhat disagree a two, somewhat agree a three, and agree a four. To insure as much anonymity as possible, the principal's name was never listed on the survey. Instead, a hand-printed number on the survey was used to identify each site.

The survey instrument was first mailed out in late October of 2001 with a request that it be returned by November 9. By mid-November the response rate from elementary schools was 39 percent, while for middle and high schools it was respectively 42 and 41 percent. A second survey and letter was then sent to non-respondents. On January 9, 2002, the survey was officially terminated and the final response percentages are listed below.

Type of School	Elementary School	Middle School	High School
"High" Performing	55%	61%	39%
"Low" Performing	61%	56%	69%

Survey results from each responding school were entered into a spreadsheet and statistical calculations done that maintained the separate identity of responses garnered from low- and high-performing elementary, middle, and high school sites.

Survey Analysis

Recall that the primary goal of the survey was to test whether responses to questions on effective practices differed between principals at high- and low-performing schools. We carried out this test by comparing the average response value for each question (by type of site) to see if there were statistically significant (90 percent degree of confidence) differences between high- and low-performers. If there are, then we can be fairly certain that something different is going on at a high-performing site than at a low-performing site. These results are offered below in Table 4.

In addition to discovering whether any relationships exist between the responses given for any two of the questions by elementary, middle, or high school principals of high- or low-performing sites, a cross tabulation that resulted in the production of Cramer's V statistics was also done. A statistically significant V statistic falls between zero and one and indicates the strength of association (one being the highest) between two categorical variables. Table 5 reports these statistically significant relationships between responses to two questions, by type of school, that existed for high-performing schools and not low-performing. These findings describe multiple approaches that a high-performing school is taking and thus may offer clues to their success at doing better on the API than the typical California school with the same input characteristics.

Average Response

From left to right, the first four columns of Table 4 describe the survey's four questions measuring principal experience and education. The remaining columns, numbered 1 to 14, correspond to question numbers on the survey, describing the 14 best-practice questions asked. The three rows of data correspond to the average response to these questions at elementary, middle, and high school level. Within these three rows, average responses are tallied for both high- and low-performers. Statistically different responses (again at a 90 percent level of confidence) are provided in bold and marked with an asterisk.

Perhaps the most striking overall result from Table 4 is the lack of statistically significant differences between the average response garnered from a high- and a low-performing school. This difference occurs in only 15 out of 54 possible places, or 28 percent. Our survey detected absolutely no differences in the average response of principals at high- or low-performing elementary, middle, and high school sites regarding whether tutoring is provided, adequate personnel

Table 4: Average Values Recorded for Survey Questions

							1	2	3	4
	Number of Surveys Returned	**Principal Years at Site**	**Principal Years at Any Site**	**Principal Holds Master's (Y=1, N=0)**	**Principal Holds Doct. (Y=1, N=0)**		**Succeed Any Student**	**Free To Hire**	**Work In Teams**	**Parents Are Involved**
Elementary										
High Performing	77	**5.51***	**8.96***	0.95	0.08		3.59	**3.23***	**3.70***	3.54
Low Performing	73	**4.05***	**7.17***	0.89	0.05		3.72	**3.45***	**3.44***	3.38
Middle School										
High Performing	22	4.64	9.18	1.00	0.16		**3.50***	3.50	**3.58***	**3.68***
Low Performing	14	4.76	7.01	0.95	0.05		**3.05***	3.10	**3.33***	**3.14***
High School										
High Performing	10	3.82	5.82	0.73	0.09		3.42	**3.82***	**3.50***	3.08
Low Performing	11	2.56	5.90	0.91	0.09		3.18	**3.42***	**3.09***	3.27
	5	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
	Tutoring Provided	**Personnel Handle Discipline**	**Frequent Assessment Used**	**District Flexibility Resources**	**Reading Literacy Emphasis**	**Supplement Public Funding**	**Physical Condition Adverse**	**Students Attended Pre-Sch.**	**English Learner Support**	**Title 1 Funds Hire Non-Prof.**
Elementary										
High Performing	3.06	3.27	3.66	3.23	3.90	**2.21***	2.08	**1.92***	3.43	2.18
Low Performing	3.25	3.14	3.56	3.22	3.89	**2.56***	2.00	**1.70***	3.55	1.93
Middle School										
High Performing	3.85	3.40	**3.70***	**3.30***	3.75	1.95	**1.80***	2.06	3.75	1.57
Low Performing	3.62	2.95	**3.05***	**2.90***	3.48	2.10	**2.81***	2.05	3.67	1.60
High School										
High Performing	3.25	3.33	3.33	3.33	3.67	**3.33***	1.92	2.64	3.55	2.17
Low Performing	3.45	3.45	3.18	3.09	3.55	**2.27***	2.09	2.36	3.73	1.90

Where 4 = Agree, 3 = Somewhat Agree, 2= Somewhat Disagree, 1 = Disagree.

* Indicates statistically significant difference (90% confidence level) between two reported means.

exists to handle discipline, reading is emphasized, English-learner support exists, or Title 1 funds are used to hire non-professionals.

Given that the responses of principals at California's highest- and lowest-performing sites are not that different in the vast majority of cases, we should pay particular attention to where they are. For instance, the only measured difference in principal experience and education came between high- and low-performing elementary schools. High-performer principals exhibited both more years of service at their current elementary site and more years at any site.

Regarding the 14 effective or best-practice questions, much has been made in the case-study literature of high-performing schools of the importance of a school-wide belief that any student can succeed. As Table 4 indicates, our survey reflects a difference in this belief only at middle schools. At the elementary and high school level, principals at high- and low-performing sites were equally likely to express faith that any student can succeed.

Middle school principals at high-performing schools were also unique in their responses to questions 4, 7, 8, and 11. They were more likely to indicate that: (1) parents are involved, (2) frequent assessment is used, (3) the district offers them the flexibility and resources to seek student improvement, and (4) the physical condition of their school does not impact learning outcomes.

The only unique response difference between high- and low-performing sites at the elementary level concerned the importance of pre-school education. As expected, principals at high-performing sites were more likely to agree that most of their students had attended a pre-school program.

Rather indeterminate overall were the significantly different findings at the elementary and high school levels regarding questions 2 and 10. Contrary to the case-study literature, we find that principals at low- performing elementary sites were more likely to agree with the statement that they are free to hire the teachers they wish to and are able to supplement public funding. But the findings were just the opposite at the high school level. Principals at high-performing high schools were more likely to feel that they are free to hire and able to supplement public funding.

The only question to which principals at high- and low-performing sites consistently exhibited different responses – no matter whether they came from an elementary, middle, or high school – asked:

> *At our school, all teachers and learning specialists work in teams to improve a student's academic performance.*

Though principals at both high- and low-performing schools answered within the range of somewhat agree to agree, our analysis shows that the high-performers

across all types of schools were more likely to answer that they fully agreed with this statement.

Related Responses

Though overall less enlightening than the information in Table 4, Table 5 contains some kernels of information that yield policy implications. Recall that all types of high performers in the survey stressed the importance of working in teams at their schools. Since this is a consistently important attribute of high performers, are there any relationships among the response given by a high-performing principal to this question and any of the other 13 best-practice questions on the survey?

The statistical answer is offered in row 4 of Table 5 that begins with the description "Work in Teams." Moving to the column "Reading Literacy Emphasis," the values of 0.34 and 0.71 indicate that a high-performing middle (M) school principal who agreed that educators worked in teams at his or her school was also likely to agree that the school exhibited a reading/literacy emphasis. Alternatively, a high-performing high (H) school principal who agreed that educators worked in teams was also very likely to agree that the school had a reading/literacy emphasis. Calculated from a scale of zero to one, with one indicating the stronger association, the values 0.34 and 0.71 indicate the strength of this association.

Moving further across the "Work in Teams" row in Figure 7, both high-performing middle and high school principals who agreed that their schools work in teams also tended to agree that their students were more likely to have attended pre-school. At high-performing high schools, teamwork for student success was more likely to exist where English-language learner support was available.

Other relationships like this are left for the reader's discovery. A summary of this research, and policy conclusions drawn from it, are offered next.

Table 5: Significant Cramer's V Statistics for High Performing Sites That Are Different Than Low Performing

	8	9	10	11	12	13	14
	District	**Reading**	**Supplement**	**Physical**	**Students**	**English**	**Title 1 Funds**
Question	**Flexibility**	**Literacy**	**Public**	**Condition**	**Attended**	**Learner**	**Hire**
	Resources	**Emphasis**	**Funding**	**Adverse**	**Pre-Sch.**	**Support**	**Non-Prof.**
1							
Suceed		0.34 (E)					0.25 (E)
Any				0.53 (M)			
Student							
2							
Free				0.26 (E)		0.25 (E)	
To		0.62 (M)			0.63 (M)		
Hire		0.66 (H)					
3							
Work							
in		0.34 (M)			0.56 (M)		
Teams		0.71 (H)			0.64 (H)	0.69 (H)	
4							
Parents							
Are	0.50 (M)						
Involved			0.87 (H)			0.59 (H)	
5							
Tutoring		0.35 (E)					
Provided	0.55 (M)				0.78 (M)	0.61 (M)	1.00 (H)
6							
Personnel	0.30 (E)			0.27 (E)		0.29 (E)	
Handle					0.56 (M)		
Discipline	0.76 (H)	0.66 (H)					
7							
Frequent	0.31 (E)						0.28 (E)
Assessment							
Used		0.66 (H)				0.59 (H)	

Cramer's V varies between zero and one and measures strength of association between two categorical variables.

Section VII: Summary and Policy Options

This report has described the empirical methods used to better understand why some high-poverty, high-minority, high English-language learner, etc. schools in California have beaten the odds and produced higher standardized student test scores than the typical California school in the same situation.

The motivation for this study came from the state's Public Schools Accountability Act (PSAA) of 1999. The PSAA requires that California policymakers, by as early as September 2002, decide what to do with schools that recorded low test scores in 1999/00 and were unable to satisfactorily raise them in the following two academic years. Our belief in conducting this research has been that a study of high-performing schools, doing much better than a typical California school in the same situation, will offer important suggestions to policymakers for assisting the low-performers. We now turn to a summary of our research methods and a synthesis of the policy recommendations derived from this research.

Summary

The first section of this report described the rise in concern, in both the United States and California, over poor academic performance at some schools. California's response to this concern, the Public Schools Accountability Act of 1999, its prescription for calculating an Academic Performance Index (API) for each school site, and plans for helping – and if necessary sanctioning – low-performing schools were also described. The first section concluded with a brief description of previous studies on factors that have been found to determine differences in API scores across schools.

Section II of this report served as an overview of the methods that previous researchers have used to determine the factors that drive a school's academic performance. These include the production function, effective educational practice, and institutional approaches. A quick summary of the findings from these approaches and how they tie into our research approach was offered.

A plan for the method of study used in our research was the subject of Section III. These steps involve a regression analysis based upon the production-function approach to understanding school performance and then data/survey inquiries grounded in the institutional and effective educational practice approaches.

In Section IV we offered a description of the regression findings and, most importantly, how they are used to predict a school's hypothetical API score if it performed like the typical California school having the same characteristics it exhibits. This prediction enabled us to generate lists of the top 5 percent high-

performing and bottom 5 percent low-performing sites based upon differences in actual and predicted performance.

Our lists of high- and low-performing elementary, middle, and high school sites served as the basis of an examination in Section V of differences in teacher characteristics, year-round operations, and magnet/charter status among these over- and under-performing sites. Section VI continued this form of inquiry, but relied on a survey of principals at low- and high-performing schools to determine differences in practices at these schools that is not available in public data sets. The inquiries described in Sections V and VI yielded specific findings that are reviewed next and translated into policy implications.

Review of Findings

As stated earlier, we will not draw any policy implications from the regression coefficients derived in step one of our research. Though these regression coefficients indicate the influence that a one-unit change in a particular explanatory variable has on a school's API score (in percentage terms), the intent of running them was only to create a predictive tool. Though these regressions are fine for the predictive purpose we use them for, the magnitude and direction of these particular effects could be biased by the exclusion of other factors that also determine a school's API. As noted earlier, the predictive factors included in our study are equal to (or even greater) than the predictive factors included in the California Department of Education's (2000) regressions used to construct a similar schools rank.

The policy implications described next are derived from data-based findings that came out of step two (using existing data sources) and step three (using our own survey) of our analysis. These findings are offered below in bulleted form. An explanation in parenthesis for the type of school site the finding applied to is also given. Remember that the comparison group for the high-performing school results described next is the appropriate group of low-performing schools we identified earlier.

<u>Teacher Characteristics</u>

- **Teachers at high-performing schools are more likely to have completed a degree.** (At the elementary school level this holds for both a Bachelor of Arts and a Master of Arts (MA). At the middle school level this holds for an MA and a Ph.D.)

- **Teachers at high-performing schools are more likely to have completed coursework for college degrees (**elementary and middle schools.)

- **Teachers at high-performing schools have a greater number of years of teaching anywhere in the district** (elementary and middle schools).

- **Teachers at high-performing schools have taught more years at the current school site** (elementary schools).

- **The percentage of part-time teaching staff is greater at high-performing schools** (elementary, middle, and high schools).

- **The percentage of teaching staff who are considered long-term substitute teachers is greater at high-performing schools** (elementary schools).

- **The percentage of all staff who are considered teachers is greater at high-performing schools** (middle schools).

- **Elementary teaching credentials are more prevalent at high-performing schools** (elementary schools).

- **University interns and pre-interns are less prevalent at high-performing schools** (elementary and high schools).

- **Bilingual teaching credentials are more prevalent at high-performing schools** (middle schools).

- **Reading specialist credentials are observed more at high-performing schools** (middle schools).

- **Physical science credentials are observed more at high-performing schools** (high schools).

Operations

- **Among schools that have adopted year-round calendars, high-performing schools are more likely to have shorter times on and shorter times off** (elementary schools).

- **A high-performing school is more likely to use the magnet approach and not rely on a specified neighborhood for student attendance** (elementary schools).

Administration

- **Principal experience at the current site is greater at high-performing schools** (elementary schools).

- **Principal experience at any site is greater at high-performing schools** (elementary schools).

- **Principals at high-performing schools are more likely to agree with the statement, "Teachers and learning specialists work in teams to improve a student's academic performance"** (elementary, middle, and high schools).

- **Principals at high-performing schools are more likely to agree that "we can succeed with any student, we work to ensure that parents are involved, we use frequent assessment and it is used to improve student performance, and the district gives us the flexibility to use resources to improve"** (middle schools).

- **Principals at high-performing schools are more likely to believe they are "free to decide whom to hire as a replacement teacher"** (high schools).

Physical Structure

- **Principals at high-performing schools are less likely to believe that the "physical condition of the school adversely affects student outcomes"** (middle schools).

Policy Implications

The above findings offer the base of information from which we next suggest policy alternatives that the California Legislature or Department of Education consider when crafting their owns plans to deal with California schools that have failed to show the improvements in API scores mandated by the PSAA. This policy course is based upon our research that has shown observed differences in the two extreme sets of schools that have done much better or much worse than expected given the measured school, student, and social inputs they had to work with. We suggest that policymakers consider requiring the state's poorly performing school sites to adopt some of the practices that we have observed to be related to success elsewhere.

Concerning teacher characteristics, we have found that high-performing sites are more likely to have teachers who have completed whatever degree they began working on and to have greater teaching experience. Teachers at high-performing sites are less likely to be in a university or pre-internship program.

This suggests that state policy be designed to encourage teachers who reflect these characteristics to work at identified low-performing schools that have been unable to raise test scores. Important also to note in our findings is the absence of large differences in the specific type of credentials that teachers hold at low- and high-performing schools. This suggests that a policy of encouraging/requiring specific teaching credentials at low-performing schools is likely to do little to improve the schools' performance. Two exceptions to this

general rule may be to work toward equalizing bilingual and reading specialist differences between high- and low-performing middle schools and similar differences in the physical science teaching credential between high- and low-performing high schools.

In addition, the value of allowing principals greater flexibility in teacher hiring is shown by our consistent findings that high-performing schools of all types exhibit a greater percentage of teaching staff that is part-time, and that high-performing elementary schools choose to use a greater percentage of long-term substitute teachers. Also, principals at high-performing high schools are more likely to believe that they are free to decide whom to hire as replacement teachers. The policy ramifications of these findings would suggest that principals be allowed flexibility and greater choice in hiring at low-performing schools. Perhaps new teachers should go through an evaluation period before being granted full-time (tenured) employment at low-performing schools that have failed to improve. These approaches would require changes in the way new teachers are hired and transferred between schools through collective bargaining.

Regarding the school operations of low-performers that haven't improved, we suggest a reform package that encourages movement to a year-round calendar characterized by short periods of instruction and short periods of time off. Though we have found that high-performing elementary schools are more likely to use the "magnet" approach in establishing who their students are, we do not advocate adopting selective admission criteria to raise the scores of low-performing schools. Low-performing students who did not meet such criteria would simply be passed onto another school, which would not resolve core performance issues.

Given the number of studies that have looked at high-performing schools and identified specific administrative practices that researchers felt were responsible for the high performance, we were frankly somewhat surprised at our own survey findings. Policymakers should note the many cases where we found no differences in administratively driven practices in our survey of principals at both California's bottom 5 percent and top 5 percent of schools. This includes the provision of tutoring, personnel to handle discipline, an emphasis on reading literacy, support for English-learners, and Title 1 funds for hiring non-professionals to assist in the classroom. Based on these findings, we cannot suggest a policy course for improving low-performing schools that would include greater emphasis in any these four areas.

However, the lack of differences in these areas causes us to put greater emphasis on the administrative areas where we did find differences. Policymakers grappling with how to improve California's lowest-performing schools should note that principals in the top-performing elementary, middle, and high schools were all more likely than principals in the low-performers to agree that "teachers and learning specialists work in teams to improve a student's

academic performance." The clear policy implication of this is state encouragement and funding for such practices in persistently low performers.

In addition, we believe it is important for the policy community to note that differences in administrative practices between top and bottom performers were by far the greatest at the middle schools. At this level, high-performing school principals were more likely to believe they could succeed with any student, that parents were involved, that the schools used frequent assessment, that their districts offered them flexibility in using resources, and that the physical condition of their sites did not adversely influence API scores. We draw two policy implications from this. First, in thinking about policy alternatives, greater attention should be paid to low-performing middle schools because there are some clear differences in administrative practices that, if changed, would be more likely to raise their API scores. Second, some of these administrative changes could be achieved through specific state policy actions. This would include funding to support greater parental involvement, more frequent assessment and use of it for improvement plans, greater principal flexibility in how site resources are spent, and physical improvements at the state's lowest-performing school sites.

Note also that we find that principals' years of experience do vary between high- and low-performing middle schools. The high-performer average for principals was 5.5 years at the current site, while the low-performer average was closer to four years. It is debatable whether high performance is caused in part by a principal's tenure at a site or, alternatively, the length of principal tenure is caused by high performance. More telling is our finding that principals at high-performing sites have greater overall experience at any site. The possible policy implication from this would be that experienced principals, and those successful at producing high API scores elsewhere, should be encouraged to lead under-performing schools.

Further Research

We conclude this paper by stressing that this research will have served its purpose if it helps clarify the factors that can cause two schools sites -- with similar types of students, parent education levels, K-6 class sizes, and ratios of fully or emergency credentialed teachers -- to score either very well or very poorly on a measure of school-wide academic performance. Our hope is that these insights can translate into sharing with under-performers some of the tools that are working for high-performing schools. Ideally these findings can be used by policymakers to effectively craft important legislation, interventions, and sanctions that may help raise the level of achievement among California's worst under-performers. We also hope this research serves as a motivation to others to refine the techniques used here and retest the validity of our conclusions.

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Appendix

Table A1

Regression Results Using Log of 1999 API Score as Dependent Variable

Variable	Elementary Coefficient (Standard Error)	Middle School Coefficient (Standard Error)	High School- Coefficient (Standard Error)
Constant	6.192*** (0.077)	5.772*** (0.130)	5.867*** (0.093)
% students African American	-0.002169*** (0.001)	-0.003102*** (0.001)	-0.003293*** (0.001)
% students Native American	-0.004309*** (0.001)	-0.004995*** (0.001)	-0.0005958 (0.001)
% students Asian	0.001632*** (0.001)	0.001924** (0.001)	0.001759** (0.001)
% students Filipino	0.001025 (0.001)	-0.0001237 (0.001)	-0.0003470 (0.001)
% students Hispanic	-0.001297** (0.001)	-0.0009296 (0.001)	-0.0009400 (0.001)
% students Pacific Islander	-0.0002887 (0.001)	0.001477 (0.002)	-0.001462 (0.002)
% students Caucasian	-0.0001934 (0.001)	0.00002389 (0.001)	0.0001664 (0.001)
% students reduced price meals	-0.002466*** (0.000)	-0.002120*** (0.000)	-0.0001874 (0.000)
% English Language Learners	-0.002089*** (0.000)	-0.002035*** (0.000)	-0.001363*** (0.000)
% students first year attend	-0.0008773*** (0.000)	-0.0002492* (0.000)	-0.0003888*** (0.000)
average parent education level x 10	0.006074*** (0.0004)	0.008638*** (0.0006)	0.0163*** (0.0007)
dummy if year-round school	-0.02097*** (0.004)	-0.03075*** (0.009)	-0.009519 (0.014)
average class size grades K-3	0.001200 (0.001)	Not Relevant	Not Relevant
average class size grades 4-6	0.001532*** (0.000)	Not Relevant	Not Relevant
% teachers full credential	0.001887*** (0.000)	0.002170*** (0.000)	-0.0009059** (0.000)
% teachers emergency credential	0.0009688*** (0.000)	0.0002536 (0.000)	-0.002374*** (0.000)
total enrollment in hundreds	-0.0005952 (0.000)	-0.0006776 (0.000)	0.0004945 (0.000)
% first-day enrollees tested	0.0009119 (0.001)	0.004197*** (0.001)	0.002457*** (0.000)
% first-day enrollees iep excluded	0.00009858 (0.001)	-0.001216 (0.001)	-0.0005412 (0.001)
% first-day enrollees parent excluded	0.001363* (0.001)	0.00303** (0.002)	0.001548 (0.001)
# Observations	4305	1088	813
Adjusted R-Squared	0.845	0.899	0.901
R-Squared	0.846	0.901	0.903

*Statistical Significance: *** 99% or greater in two-tailed test, ** 95-99%, and * 90-95%.*

Table A2
Regression Results Using Log of 2000 API Score as Dependent Variable

Variable	Elementary Coefficient (Standard Error)	Middle School Coefficient (Standard Error)	High School- Coefficient (Standard Error)
Constant	6.212*** (0.071)	5.709*** (0.127)	5.846*** (0.095)
% students African American	-0.002016*** (0.001)	-0.001966** (0.001)	-0.005116*** (0.001)
% students Native American	-0.004018*** (0.001)	-0.004644*** (0.001)	-0.003084*** (0.001)
% students Asian	0.001547*** (0.001)	0.002963*** (0.001)	-0.000008945 (0.001)
% students Filipino	0.001245** (0.001)	0.002143** (0.001)	-0.001511 (0.001)
% students Hispanic	-0.001061** (0.001)	0.0003781 (0.001)	-0.002617*** (0.001)
% students Pacific Islander	0.0006569 (0.001)	-0.0004121 (0.002)	-0.004434* (0.002)
% students Caucasian	-0.0001624 (0.001)	0.001296 (0.001)	-0.001389 (0.001)
% students reduced price meals	-0.002263*** (0.000)	-0.001942*** (0.000)	0.0001631 (0.000)
% English Language Learners	-0.002008*** (0.000)	-0.002063*** (0.000)	-0.001063*** (0.000)
% students first year attend	-0.0006984*** (0.000)	-0.0001122 (0.000)	-0.0003941*** (0.000)
average parent education level x 10	0.005027*** (0.0003)	0.008126*** (0.0006)	0.0167*** (0.0007)
dummy if year-round school	-0.01928*** (0.004)	-0.02666*** (0.009)	-0.01840 (0.014)
average class size grades K-3	0.00005466 (0.001)	Not Relevant	Not Relevant
average class size grades 4-6	0.001050** (0.000)	Not Relevant	Not Relevant
% teachers full credential	0.001978*** (0.000)	0.001926*** (0.000)	-0.001015** (0.000)
% teachers emergency credential	0.001052*** (0.000)	0.000006046 (0.000)	-0.001931*** (0.001)
total enrollment in hundreds	-0.002410*** (0.000)	-0.001613*** (0.000)	0.0006756** (0.000)
% first-day enrollees tested	0.001692*** (0.001)	0.004328*** (0.001)	0.004315*** (0.000)
% first-day enrollees iep excluded	0.001089** (0.001)	-0.001449 (0.001)	0.0004340 (0.001)
% first-day enrollees parent excluded	0.001111* (0.001)	0.003107** (0.001)	0.001859 (0.001)
# Observations	4380	1110	850
Adjusted R-Squared	0.835	0.893	0.883
R-Squared	0.835	0.895	0.886

*Statistical Significance: *** 99% or greater in two-tailed test, ** 95-99%, and * 90-95%.*

Table A3
Top 5% Performing Elementary Schools for 1999 and 2000

Rank	School Name	Special Type	District Name	2000 Actual API	2000 Predicted API	2000 Performance Percentage
1	Kelso (William H.) Elementary		Inglewood Unified	808	501.39	61.15
2	Hudnall (Claude) Elementary		Inglewood Unified	781	486.61	60.50
3	Highland Elementary		Inglewood Unified	761	498.42	52.68
4	Central Elementary		San Diego City Unified	736	484.40	51.94
5	Payne (Buelah) Elementary		Inglewood Unified	748	507.85	47.29
6	Bennett/Kew Elementary		Inglewood Unified	775	540.48	43.39
7	Costano Elementary		Ravenswood City Elem	751	541.58	38.67
8	Moscone (George R.) Elementary		San Francisco Unified	801	577.87	38.61
9	Centinela Elementary		Inglewood Unified	670	484.94	38.16
10	Lane (Robert Hill) Elementary		Los Angeles Unified	749	549.90	36.21
11	Spring Valley Elementary		San Francisco Unified	733	546.62	34.10
12	Addams Elementary		Long Beach Unified	632	478.60	32.05
13	Lafayette Elementary		Long Beach Unified	604	459.60	31.42
14	Wash (John S.) Elementary		Sanger Unified	795	606.65	31.05
15	Hedrick (Margaret) Elementary		El Centro Elementary	783	598.46	30.84
16	Woodworth (Clyde) Elementary		Inglewood Unified	597	458.18	30.30
17	Hobart Boulevard Elementary		Los Angeles Unified	645	497.53	29.64
18	Commonwealth Avenue Elementary		Los Angeles Unified	650	501.92	29.50
19	Accelerated School	Charter	Los Angeles Unified	654	507.60	28.84
20	Fremont Primary		Calipatria Unified	668	519.33	28.63
21	Lau (Gordon J) Elementary		San Francisco Unified	726	564.47	28.62
22	Lambert (C.C.) Elementary		Tustin Unified	572	446.18	28.20
23	Elder Creek Elementary		Sacramento City Unified	756	591.41	27.83
24	Oak Street Elementary		Inglewood Unified	672	526.40	27.66
25	Freeman (Daniel) Elementary		Inglewood Unified	728	570.64	27.58
26	Playa del Rey Elementary		Los Angeles Unified	674	530.97	26.94
27	Jefferson Elementary		Kings Canyon Unified	601	473.94	26.81
28	Stevenson Elementary	Magnet	Long Beach Unified	597	474.75	25.75
29	Towne Avenue Elementary		Los Angeles Unified	669	536.53	24.69
30	Manchester Gate	Magnet	Fresno Unified	948	760.30	24.69
31	Camellia Elementary		Sacramento City Unified	847	679.46	24.66
32	Taft Elementary		Santa Ana Unified	796	639.86	24.40
33	Vine Street Elementary		Los Angeles Unified	582	468.48	24.23
34	Adams Elementary	Magnet	Santa Barbara Elementary	692	560.70	23.42
35	Dewey Elementary		San Diego City Unified	789	639.78	23.32
36	Jefferson Elementary		San Diego City Unified	683	554.01	23.28
37	Monroe Elementary		Santa Barbara Elementary	765	621.00	23.19
38	Laurel Street Elementary		Compton Unified	596	484.86	22.92
39	Whaley (O.B.) Elementary		Evergreen Elementary	726	591.16	22.81
40	Solano Avenue Elementary		Los Angeles Unified	721	587.75	22.67
41	Peters (Ocia A.) Intermediate		Garden Grove Unified	638	522.25	22.16
42	Bright (Birdielee V) Elementary		Los Angeles Unified	619	507.42	21.99
43	Ninety-Third Street Elementary		Los Angeles Unified	575	471.65	21.91
44	Fifty-Fourth Street Elementary	Charter	Los Angeles Unified	653	536.15	21.79
45	Parker (Jean) Elementary		San Francisco Unified	678	556.71	21.79
46	Allesandro Elementary	Magnet	Los Angeles Unified	624	513.25	21.58
47	Wilkerson Elementary		El Monte City Elementary	623	512.57	21.54
48	Cantara Street Elementary		Los Angeles Unified	610	502.41	21.42
49	Land (William) Elementary		Sacramento City Unified	705	580.65	21.41
50	Worthington Elementary		Inglewood Unified	572	471.77	21.24
51	Garfield Elementary		San Francisco Unified	718	592.63	21.16
52	Santiago Elementary		Santa Ana Unified	744	614.29	21.11
53	Signal Hill Elementary	Magnet	Long Beach Unified	667	551.74	20.89

Table A3
Top 5% Performing Elementary Schools for 1999 and 2000

54	E.G. Garrison Elementary		Oceanside Unified	696	576.62	20.70
55	Telechron Elementary		South Whittier Elem	669	554.47	20.66
56	Lincoln Elementary		Oakland Unified	799	663.37	20.45
57	Oak Hill Elementary		Escondido Union Elem	703	584.02	20.37
58	Hearst (Phoebe A.) Elementary	Magnet	Sacramento City Unified	902	749.64	20.32
59	Cahuenga Elementary		Los Angeles Unified	627	521.42	20.25
60	Beethoven Street Elementary		Los Angeles Unified	717	597.35	20.03
61	Sierra View Elementary		Rio Linda Union Elem	715	596.32	19.90
62	Orange Glen Elementary		Escondido Union Elem	713	594.68	19.90
63	Del Vista Elementary		Delano Union Elementary	602	502.24	19.86
64	Franklin Elementary		San Diego City Unified	693	579.55	19.57
65	Washington Elementary		Kings Canyon Unified	746	625.17	19.33
66	Juniper Elementary		Escondido Union Elem	667	558.97	19.33
67	Willow Oaks Elementary		Ravenswood City Elem	559	468.75	19.25
68	Steinbeck (John E.) Elementary		Alisal Union Elementary	754	632.47	19.21
69	Manzanita Elementary		Palmdale Elementary	603	505.84	19.21
70	Wiley Canyon Elementary		Newhall Elementary	805	675.96	19.09
71	Sloat (John D.) Elementary		Sacramento City Unified	690	580.37	18.89
72	Clovis Elementary		Clovis Unified	790	664.93	18.81
73	McKinley Elementary		Santa Monica-Malibu Unif	809	682.39	18.55
74	Franklin (Benjamin) Elementary		Glendale Unified	676	570.37	18.52
75	Cordova Meadows Elementary		Folsom-Cordova Unified	787	664.13	18.50
76	Joshua Hills Elementary		Palmdale Elementary	723	610.87	18.36
77	Adam (William Laird) Elementary		Santa Maria-Bonita Elem	597	504.58	18.32
78	Estock (Helen) Elementary		Tustin Unified	691	584.24	18.27
79	Gardner Street Elementary		Los Angeles Unified	719	608.22	18.21
80	Birney Elementary	Magnet	Long Beach Unified	691	584.84	18.15
81	Flood (James) Elementary		Ravenswood City Elem	660	559.07	18.05
82	Chesterton Elementary		San Diego City Unified	790	669.35	18.02
83	Field Elementary		San Diego City Unified	741	628.33	17.93
84	Sierra Vista Elementary		Clovis Unified	736	624.99	17.76
85	Dailard Elementary		San Diego City Unified	865	734.54	17.76
86	Frederick Joyce Elementary		Rio Linda Union Elem	717	609.40	17.66
87	Village Elementary		Rincon Valley Union Elem	868	737.81	17.65
88	Parks (Rosa) Elementary		San Francisco Unified	692	588.73	17.54
89	Babcock (D.W.) Elementary		North Sacramento Elem	740	629.62	17.53
90	Willard Elementary		Long Beach Unified	602	512.76	17.40
91	Burbank Elementary	Magnet	Long Beach Unified	573	488.96	17.19
92	Howard Elementary		Oakland Unified	681	581.36	17.14
93	Murray Manor Elementary		La Mesa-Spring Valley	910	776.89	17.13
94	Broadacres Avenue Elementary		Los Angeles Unified	703	600.30	17.11
95	El Dorado Avenue Elementary		Los Angeles Unified	574	491.02	16.90
96	Cathedral City Elementary		Palm Springs Unified	589	505.16	16.60
97	Beardslee Elementary		Duarte Unified	631	541.56	16.51
98	Fancher Creek Elementary		Clovis Unified	745	640.13	16.38
99	King Elementary		Long Beach Unified	547	470.27	16.32
100	Pacific Union Elementary		Pacific Union Elementary	683	587.25	16.30
101	Smythe Elementary		San Ysidro Elementary	578	497.15	16.26
102	Harrison Elementary		Pomona Unified	604	519.76	16.21
103	Central Elementary		Central Union Elementary	649	558.87	16.13
104	Buchanan Street Elementary	Magnet	Los Angeles Unified	596	513.88	15.98
105	Lampson Elementary		Orange Unified	640	552.07	15.93
106	Mayberry Street Elementary		Los Angeles Unified	581	501.21	15.92
107	Cleveland Elementary		Oakland Unified	774	668.24	15.83
108	Wilsona Elementary		Wilsona Elementary	688	594.09	15.81
109	Alvarado (Juan Bautista) Elementary		Long Beach Unified	700	605.28	15.65
110	Burnett Elementary		Long Beach Unified	553	478.48	15.58

Table A3
Top 5% Performing Elementary Schools for 1999 and 2000

111	Imperial Beach Elementary		South Bay Union Elem	705	610.30	15.52
112	Bursch Elementary		Compton Unified	565	489.27	15.48
113	Ramona-Alessandro Elementary	Magnet	San Bernardino City Unif	643	556.82	15.48
114	Heninger (Martin R.) Elementary		Santa Ana Unified	537	465.56	15.34
115	Vanalden Avenue Elementary		Los Angeles Unified	702	608.65	15.34
116	Houghton-Kearney Elementary		Central Unified	824	715.17	15.22
117	Rorimer Elementary		Rowland Unified	663	575.59	15.19
118	Hemet Elementary		Hemet Unified	658	571.35	15.17
119	Harte Elementary		Long Beach Unified	590	513.06	15.00
120	Encinita Elementary		Rosemead Elementary	704	612.40	14.96
121	Shuey (Emma W.) Elementary		Rosemead Elementary	749	651.61	14.95
122	San Jose Elementary		Pomona Unified	620	539.50	14.92
123	Rose Avenue Elementary		Oxnard Elementary	633	550.82	14.92
124	Maple Elementary		Maple Elementary	823	716.49	14.87
125	North Star Academy (Elem)	Magnet	Redwood City Elementary	938	817.20	14.78
126	Dove Hill Elementary		Evergreen Elementary	734	639.88	14.71
127	Kennedy (Robert F.) Elementary		Compton Unified	586	511.05	14.67
128	Greenville Fundamental		Santa Ana Unified	806	703.00	14.65
129	Belvedere Elementary	Magnet	San Bernardino City Unif	698	609.03	14.61
130	Van Deene Avenue Elementary		Los Angeles Unified	621	542.28	14.52
131	Pacific Beach Elementary		San Diego City Unified	767	670.30	14.43
132	Highlands Elementary		La Mesa-Spring Valley	821	717.52	14.42
133	Carver (George Washington) Elem		San Francisco Unified	682	596.12	14.41
134	Clifford Street Elementary		Los Angeles Unified	592	517.58	14.38
135	Los Cerritos Elementary	Magnet	Long Beach Unified	760	665.13	14.26
136	Grass Valley Elementary		Oakland Unified	712	623.33	14.23
137	Alcott Elementary		San Diego City Unified	816	715.15	14.10
138	Neutra Elementary		Central Union Elementary	833	730.33	14.06
139	Riverview Elementary		Kings Canyon Unified	725	635.81	14.03
140	Laurel Elementary		Brea-Olinda Unified	711	624.40	13.87
141	East Cottonwood Elementary		Cottonwood Union Elem	799	702.27	13.77

Table A4
Bottom 5% Performing Elementary Schools for 1999 and 2000

Rank	School Name	Special Type	District Name	2000 Actual API	2000 Predicted API	2000 Performance Percentage
1	Fairbanks Elementary		Del Paso Heights Elem	387	570.82	-32.20
2	Cedar Lane Elementary		Marysville Joint Unified	426	621.54	-31.46
3	Verde Elementary		West Contra Costa Unified	346	504.49	-31.42
4	North Avenue Elementary		Del Paso Heights Elem	371	531.86	-30.24
5	Nystrom Elementary		West Contra Costa Unified	385	516.30	-25.43
6	Lincoln Elementary		Fresno Unified	381	508.91	-25.13
7	Lenwood Elementary		Barstow Unified	550	734.28	-25.10
8	Hidalgo (Miguel) Elementary		Fresno Unified	401	533.02	-24.77
9	Panorama Elementary		Brisbane Elementary	600	792.46	-24.29
10	Del Mar Elementary		Fresno Unified	451	588.16	-23.32
11	Inghram (Howard) Elementary		San Bernardino City Unif	383	499.33	-23.30
12	Leavenworth (Ann B.) Elementary		Fresno Unified	423	549.41	-23.01
13	Whittier Elementary		Oakland Unified	386	500.43	-22.87
14	Newberry Springs Elementary		Silver Valley Unified	589	761.01	-22.60
15	McKinley Elementary		Franklin-McKinley Elem	398	513.31	-22.46
16	John Kelley Elementary		Coachella Valley Unified	374	480.78	-22.21
17	Hyde Park Blvd. Elementary	Charter	Los Angeles Unified	376	483.02	-22.16
18	Highland Elementary		Oakland Unified	411	526.86	-21.99
19	Menlo Avenue Elementary		Los Angeles Unified	406	519.46	-21.84
20	Highland Elementary		Visalia Unified	397	507.83	-21.82
21	Oakdale Heights Elementary		Oroville City Elementary	480	612.37	-21.62
22	Castle Rock Elementary		Woodlake Union Elem	442	563.78	-21.60
23	Loma Vista Elementary		Salinas City Elementary	445	567.52	-21.59
24	Loma Vista Elementary		Vallejo City Unified	506	644.52	-21.49
25	Burbank Elementary		San Bernardino City Unif	399	507.48	-21.38
26	Woodville Elementary		Woodville Elementary	417	528.78	-21.14
27	Oakwood Elementary		Lodi Unified	525	664.65	-21.01
28	Pleasant View Elementary		Pleasant View Elementary	455	575.75	-20.97
29	Berry Creek Elementary		Pioneer Union Elementary	498	629.68	-20.91
30	Kirk Elementary		Fresno Unified	416	525.89	-20.90
31	Still (John H.) Elementary		Sacramento City Unified	459	579.94	-20.85
32	Bethune Elementary		Fresno Co. Off. of Educ.	399	503.14	-20.70
33	Boronda Elementary		Salinas City Elementary	467	588.74	-20.68
34	One Hundred Seventh Street Elem	Magnet	Los Angeles Unified	375	470.60	-20.31
35	Del Paso Heights Elementary		Del Paso Heights Elem	443	555.48	-20.25
36	Broadous (Hillery T.) Elementary	Magnet	Los Angeles Unified	380	475.81	-20.14
37	Storey (Edith B.) Elementary		Fresno Unified	437	546.81	-20.08
38	Crestline Elementary		Barstow Unified	540	674.89	-19.99
39	Pedley Elementary		Jurupa Unified	497	620.87	-19.95
40	Sunset Elementary	Charter	Fresno Unified	424	529.21	-19.88
41	Fifty-Second Street Elementary		Los Angeles Unified	409	510.41	-19.87
42	Rowell Elementary		Fresno Unified	412	514.12	-19.86
43	West Vernon Avenue Elementary		Los Angeles Unified	356	443.68	-19.76
44	Balderas (Ezekiel) Elementary		Fresno Unified	440	547.32	-19.61
45	Euclid Elementary		Ontario-Montclair Elem	374	464.42	-19.47
46	East Lake Elementary		Konocti Unified	512	635.52	-19.44
47	Pacific Avenue Elementary		Jurupa Unified	496	615.53	-19.42
48	Sylmar Elementary		Los Angeles Unified	410	505.79	-18.94

Table A4
Bottom 5% Performing Elementary Schools for 1999 and 2000

49	Bell Gardens Elementary	Montebello Unified	379	467.04	-18.85
50	Palm View Elementary	Coachella Valley Unified	413	508.11	-18.72
51	Dorsa (A. J.) Elementary	Alum Rock Union Elem	433	532.28	-18.65
52	Wolters Elementary	Fresno Unified	483	593.05	-18.56
53	Golden Gate Elementary	Oakland Unified	445	546.35	-18.55
54	Phillips (Ethel) Elementary	Sacramento City Unified	452	553.32	-18.31
55	Anderson Elementary	Compton Unified	381	466.21	-18.28
56	Randall Pepper Elementary	Fontana Unified	429	524.46	-18.20
57	Maple Elementary	Sacramento City Unified	489	597.69	-18.18
58	Mayne (George) Elementary	Santa Clara Unified	504	615.37	-18.10
59	Ina Arbuckle Elementary	Jurupa Unified	438	534.73	-18.09
60	Graham Elementary	Los Angeles Unified	387	472.16	-18.04
61	Aromas Elementary	Aromas/San Juan Unified	674	822.30	-18.03
62	Two Bunch Palms Elementary	Palm Springs Unified	474	578.18	-18.02
63	Sea View Elementary	Coachella Valley Unified	433	528.07	-18.00
64	Lind (Jenny) Elementary	Calaveras Unified	647	787.34	-17.82
65	Rio Vista Elementary	Placentia-Yorba Linda	523	635.79	-17.74
66	Ewing Elementary	Fresno Unified	467	567.45	-17.70
67	Calaveras Elementary	Hollister School District	549	664.97	-17.44
68	Marsh Elementary	Antioch Unified	510	617.03	-17.35
69	Normandie Avenue Elementary	Los Angeles Unified	395	477.80	-17.33
70	Silver Wing Elementary	Chula Vista Elementary	511	617.49	-17.25
71	Lake Elementary	West Contra Costa Unified	458	553.12	-17.20
72	Wing Lane Elementary	Hacienda la Puente Unif	455	549.04	-17.13
73	Beamer Elementary	Woodland Joint Unified	493	594.10	-17.02
74	Burns Valley Elementary	Konocti Unified	500	600.73	-16.77
75	Snowden (George L.) Elementary	Farmersville Unified	424	509.28	-16.74
76	Hopkins (Mark) Elementary	Sacramento City Unified	486	583.14	-16.66
77	Roosevelt Elementary	Stockton City Unified	465	557.89	-16.65
78	Hooper Avenue Elementary	Los Angeles Unified	366	438.38	-16.51
79	Highlands Elementary	Pittsburg Unified	523	626.27	-16.49
80	Standard Elementary	Standard Elementary	534	638.70	-16.39
81	Parker Elementary	Oakland Unified	429	512.72	-16.33
82	Brisbane Elementary	Brisbane Elementary	716	855.70	-16.33
83	Dyer-Kelly Elementary	San Juan Unified	480	573.20	-16.26
84	Lowell Elementary	Fresno Unified	419	500.27	-16.25
85	Holmes Avenue Elementary	Los Angeles Unified	391	466.49	-16.18
86	Prospect Elementary	Orange Unified	530	631.88	-16.12
87	Homan Elementary	Fresno Unified	470	559.59	-16.01
88	Chavez (Cesar E.) Elementary	Oxnard Elementary	407	484.00	-15.91
89	Turner Elementary	Fresno Unified	480	569.46	-15.71
90	Fairview Elementary	Visalia Unified	475	562.65	-15.58
91	Columbia Elementary	Fresno Unified	447	528.79	-15.47
92	Plymouth Elementary	Monrovia Unified	572	676.55	-15.45
93	Foster Road Elementary	Norwalk-La Mirada Unif	508	600.43	-15.39
94	Avenal Elementary	Reef-Sunset Unified	410	484.01	-15.29
95	Portola Elementary	San Bruno Park Element.	699	824.12	-15.18
96	Grant Elementary	San Lorenzo Unified	611	720.29	-15.17
97	Haman (C. W.) Elementary	Santa Clara Unified	609	717.73	-15.15
98	Winchell Elementary	Fresno Unified	433	509.86	-15.08
99	Sierra Avenue Elementary	Thermalito Elementary	563	662.81	-15.06
100	Loma Elementary	El Monte City Elementary	407	478.57	-14.95

Table A4
Bottom 5% Performing Elementary Schools for 1999 and 2000

101	Grape Street Elementary		Los Angeles Unified	409	479.73	-14.74
102	Coronado Elementary		West Contra Costa Unified	434	508.01	-14.57
103	Grant Elementary		West Contra Costa Unified	432	504.66	-14.40
104	Topaz Elementary		Hesperia Unified	554	646.19	-14.27
105	One Hundred Eighteenth Street		Los Angeles Unified	403	469.75	-14.21
106	Los Banos Elementary		Los Banos Unified	532	620.11	-14.21
107	Yamato Colony Elementary		Livingston Union Elem	481	560.36	-14.16
108	Henry Miller Elementary		Los Banos Unified	470	546.81	-14.05
109	La Joya Elementary		Santa Rita Union Elem	581	674.76	-13.90
110	Herndon-Barstow Elementary		Central Unified	600	696.60	-13.87
111	Hesperian Elementary		San Lorenzo Unified	555	644.22	-13.85
112	Glenelder Elementary		Hacienda la Puente Unif	515	597.49	-13.81
113	Cherrywood Elementary		Berryessa Union Elem	677	783.69	-13.61
114	Junipero Serra Elementary		South San Francisco Unif	758	876.78	-13.55
115	Clairmont Elementary		Lodi Unified	510	589.68	-13.51
116	Turnbull Learning Academy	Magnet	San Mateo-Foster City	468	540.04	-13.34
117	King Avenue Elementary		Yuba City Unified	551	635.59	-13.31
118	Sherwood Elementary		Salinas City Elementary	400	460.81	-13.20
119	Hillcrest Drive Elementary	Magnet	Los Angeles Unified	432	496.56	-13.00
120	Lower Lake Elementary		Konocti Unified	559	642.01	-12.93

Table A5
Top 5% Performing Middle Schools for 1999 and 2000

Rank	School Name	Special Type	District Name	2000 Actual API	2000 Predicted API	2000 Performance Percentage
1	Vanguard Learning Center		Compton Unified	551	430.63	27.95
2	Hawthorne Middle		Hawthorne Elementary	582	470.76	23.63
3	Conejo Middle		Laton Joint Unified	627	508.56	23.29
4	Hewes Middle		Tustin Unified	847	696.37	21.63
5	Edison Computech	Magnet	Fresno Unified	906	748.63	21.02
6	Benjamin Franklin Middle		San Francisco Unified	559	463.91	20.50
7	Hidden Valley Middle		Escondido Union Elem	709	590.78	20.01
8	Compton Junior High		Bakersfield City Elem	602	506.64	18.82
9	Bud Carson Middle		Hawthorne Elementary	513	432.50	18.61
10	Kennedy Middle		El Centro Elementary	557	476.79	16.82
11	Monroe (Albert F.) Junior High	Magnet	Inglewood Unified	545	468.85	16.24
12	Oak Creek Intermediate		Bass Lake Jt. Elementary	823	712.51	15.51
13	Chipman Junior High		Bakersfield City Elem	690	598.01	15.38
14	Warner Middle		Westminster Elementary	707	614.22	15.11
15	Muscatel Middle		Rosemead Elementary	679	595.72	13.98
16	La Cumbre Middle		Santa Barbara High	629	551.90	13.97
17	Crozier (George W.) Junior High		Inglewood Unified	559	490.99	13.85
18	De Portola (Gasper) Middle		San Diego City Unified	809	711.13	13.76
19	Riverdale Elementary		Riverdale Jt. Unified	617	543.07	13.61
20	El Camino Elementary		Santa Maria-Bonita Elem	555	489.41	13.40
21	Young (Bill E.) Middle		Calipatria Unified	588	518.73	13.35
22	Ballico Elementary		Ballico-Cressey Elem	660	583.88	13.04
23	Vina Danks Middle		Ontario-Montclair Elem	610	539.74	13.02
24	Giano Intermediate		Rowland Unified	591	525.12	12.55
25	San Ysidro Middle		San Ysidro Elementary	493	438.20	12.50
26	Morrill Middle		Berryessa Union Elem	711	632.68	12.38
27	Wright (Orville) Middle	Magnet	Los Angeles Unified	657	586.77	11.97
28	New Vista Middle		Lancaster Elementary	664	595.45	11.51
29	Roosevelt Middle		San Francisco Unified	748	671.39	11.41
30	Madrid (Alfred S.) Middle		Mountain View Elem	526	475.04	10.73
31	Burroughs (John) Middle	Magnet	Los Angeles Unified	693	625.99	10.70
32	Imperial Middle		La Habra City Elementary	636	574.58	10.69
33	Hughes Middle	Magnet	Long Beach Unified	737	666.59	10.56
34	Rincon Middle		Escondido Union Elem	709	642.04	10.43
35	South Lake middle		Irvine Unified	824	746.41	10.40
36	Porter (George K.) Middle	Magnet	Los Angeles Unified	731	662.56	10.33

Table A6
Bottom 5% Performing Middle Schools for 1999 and 2000

Rank	School Name	Special Type	District Name	2000 Actual Score	2000 Predicted API	2000 Performance Percentage
1	Fremont Middle		Stockton City Unified	461	573.85	-19.67
2	Tehipite Middle		Fresno Unified	406	502.32	-19.18
3	Havenscourt Middle		Oakland Unified	370	452.15	-18.17
4	Cooper Middle		Fresno Unified	459	550.64	-16.64
5	Wawona Middle		Fresno Unified	473	565.27	-16.32
6	Drew (Charles) Middle	Magnet	Los Angeles Unified	380	452.60	-16.04
7	Sunset Elementary		Vineland Elementary	411	486.57	-15.53
8	Simmons (Calvin) Middle		Oakland Unified	409	483.49	-15.41
9	Smith (Carl) Middle		Terra Bella Union Elem	426	503.39	-15.37
10	Carver Academy (Middle)	Magnet	Fresno Unified	437	515.96	-15.30
11	Frick Middle		Oakland Unified	409	482.85	-15.29
12	Sequoia Middle		Fresno Unified	434	510.42	-14.97
13	Webster Middle		Stockton City Unified	512	599.83	-14.64
14	Willowbrook Middle		Compton Unified	403	471.44	-14.52
15	Gompers (Samuel) Middle		Los Angeles Unified	378	441.08	-14.30
16	Coalinga Middle		Coalinga/Huron Unified	559	646.62	-13.55
17	Central Middle		Oroville City Elementary	580	666.83	-13.02
18	Yosemite Middle		Fresno Unified	451	516.64	-12.70
19	Oak Hill Middle		Konocti Unified	538	616.13	-12.68
20	Oakland Charter Academy	Charter	Oakland Unified	425	486.60	-12.66
21	Nelson Avenue Middle		Thermalito Elementary	568	645.49	-12.00
22	Curtis Middle		San Bernardino City Unif	409	463.84	-11.82
23	Terronez Middle	Magnet	Fresno Unified	473	534.57	-11.52
24	Kings Canyon Middle		Fresno Unified	485	547.55	-11.42
25	Reef Sunset Middle		Reef-Sunset Unified	403	454.14	-11.26
26	Glenbrook Middle		Mt. Diablo Unified	551	620.35	-11.18
27	Esparto Middle		Esparto Unified	566	634.47	-10.79
28	Edison (Thomas A.) Middle		Los Angeles Unified	403	450.66	-10.58
29	Bidwell Junior High		Chico Unified	688	768.37	-10.46
30	Farmersville Junior High		Farmersville Unified	439	489.81	-10.37
31	Helms Middle		West Contra Costa Unified	430	479.71	-10.36
32	Alicia Intermediate		Marysville Joint Unified	526	585.18	-10.11
33	Lucerne Valley Middle		Lucerne Valley Unified	609	674.67	-9.73

Table A7
Top 5% Performing High Schools for 1999 and 2000

Rank	School Name	Special Type	District Name	2000 Actual API	2000 Predicted API	2000 Performance Percentage
1	California Academy of Math & Scie		Long Beach Unified	912	679.92	34.13
2	Blair High		Pasadena Unified	572	428.65	33.44
3	Middle College High		West Contra Costa Unified	754	566.34	33.13
4	Anderson Valley Jr./Sr. High		Anderson Valley Unified	696	568.01	22.53
5	Riverdale High		Riverdale Jt. Unified	595	492.53	20.81
6	Tulelake High		Tulelake Basin Unified	671	560.51	19.71
7	Marshall Fundamental		Pasadena Unified	582	488.10	19.24
8	Oxford High		Anaheim Union High	922	778.60	18.42
9	Los Angeles Center Enrich. Studies	Magnet	Los Angeles Unified	804	683.79	17.58
10	Westchester Senior High	Magnet	Los Angeles Unified	567	485.86	16.70
11	Lowell High		San Francisco Unified	933	804.06	16.04
12	Live Oak High		Live Oak Unified	598	522.60	14.43
13	Monterey High		Monterey Peninsula Unif.	652	569.87	14.41
14	King/Drew Medical Magnet High	Magnet	Los Angeles Unified	601	530.80	13.22
15	Bravo (Francisco) Medical Magnet High	Magnet	Los Angeles Unified	732	654.08	11.91
16	El Segundo High		El Segundo Unified	787	704.66	11.69
17	Thirty-Second St. USC Performing Arts	Magnet	Los Angeles Unified	627	566.11	10.76
18	Edison High	Magnet	Fresno Unified	635	573.88	10.65
19	Santa Ynez Valley Union High		Santa Ynez Valley High	748	676.68	10.54
20	Hayfork High		Mountain Valley Unified	676	611.82	10.49
21	Mammoth High		Mammoth Unified	746	675.57	10.42
22	Mark Keppel High		Alhambra City High	652	595.41	9.50
23	Berkeley High		Berkeley Unified	716	656.27	9.10
24	Healdsburg High		Healdsburg Unified	698	640.68	8.95

Table A8
Bottom 5% Performing High Schools for 1999 and 2000

Rank	School Name	Special Type	District Name	2000 Actual Score	2000 Predicted API	2000 Performance Percentage
1	Kern Valley High		Kern Union High	552	662.74	-16.71
2	Locke (Alain Leroy) Senior Hig		Los Angeles Unified	370	437.75	-15.48
3	Kennedy High		West Contra Costa Unified	383	446.79	-14.28
4	Grant Union High		Grant Joint Union High	434	502.30	-13.60
5	Dos Palos High		Dos Palos Oro Loma Unif	509	577.47	-11.86
6	Barstow High		Barstow Unified	558	630.05	-11.43
7	Santa Susana High		Simi Valley Unified	710	797.81	-11.01
8	Birmingham Senior High	Magnet	Los Angeles Unified	560	625.92	-10.53
9	Coachella Valley High	Magnet	Coachella Valley Unified	428	475.67	-10.02
10	Richmond High		West Contra Costa Unified	423	469.87	-9.98
11	Leuzinger High		Centinela Valley High	437	484.98	-9.89
12	North High		Kern Union High	563	623.52	-9.71
13	Los Banos High		Los Banos Unified	523	578.12	-9.53
14	Strathmore High		Strathmore Union High	493	544.48	-9.45
15	University High		Irvine Unified	850	938.23	-9.40
16	Encina High	Magnet	San Juan Unified	509	553.00	-7.96
17	Fresno High	Magnet	Fresno Unified	501	543.31	-7.79

October 24, 2001

Dear Principal:

I am writing to request your assistance in completing the enclosed survey on educational practices at your school site. These questions constitute the final stage of a yearlong research project conducted here at the Senate Office of Research (SOR). The design of the study measures determinants of academic performance at California's public elementary, middle, and high schools.

Project consultants have already examined publicly available information (API and other data sets) on the characteristics of California's school sites. However, information on the administrative, curriculum, oversight, and teaching practices at individual school sites is not publicly available. Since experts often highlight these practices as being very important, we ask your assistance in providing us with the requested information on the enclosed survey.

Given your busy schedule, we have kept the survey short in the hope you can complete it quickly. Once completed, simply fold the pre-stamped survey with the SOR address on the outside, staple it, and drop it in the mail.

Please note that your individual response to the survey questions will be confidential and we will only report the results of the survey in an aggregate form.

Please return your survey response by **November 9.** All respondents will receive a final copy our research report once it completed in January 2002.

Thank you for your time in completing this survey. The contribution that you and other principals make to further the understanding of what works to improve academic achievement will be very valuable.

Sincerely,

Elisabeth Kersten
Director

Senate Office Research

At the request of the California Senate, the Senate Office of Research has undertaken a statistical analysis of variation in API scores for schools statewide.

The goal of our analysis is to help legislators better understand the factors that drive differences in these test scores and to eventually craft legislation that can assist educators in reaching an API score that reflects the full potential of their school site.

As part of our research, we have decided to also survey **school principals** throughout California about specific practices at their sites. These responses will be matched with a school site's API score to see if any discernable relationships exist between them.

We promise that your answers will always be kept confidential and never attributed to you or your school. By making this promise we hope that you will answer these questions honestly in regard to what is **actually** going on at your school, rather than what you would like to be going on, or know should go on in an ideal world.

After completing the following short survey, please fold so the return address shows and drop in the mail. We would appreciate this being done by December 19, 2001. **All respondents will receive a full copy of our report when it is completed in early January.**

Thank you in advance for your time.

Survey Questions

Please indicate your years of service:
as a principal at **current site** _____**,**
as a principal at **any site** _____**.**
Do you hold a master's degree _____ **?**
Do you hold a doctorate _____**?**

Please make a mark in the circle that represents the degree to which you agree with the statement.

1. The prevailing opinion at our school is that we can succeed with any student.

1 **2** **3** **4**
O----------O----------O----------O
Disagree **Somewhat Disagree** **Somewhat Agree** **Agree**

2. As a principal I feel fairly free to decide whom to hire as a new or replacement teacher.

1 **2** **3** **4**
O----------O----------O----------O
Disagree **Somewhat Disagree** **Somewhat Agree** **Agree**

3. At our school, all teachers and learning specialists work in teams to improve a student's academic performance.

1 **2** **3** **4**
O----------O----------O----------O
Disagree **Somewhat Disagree** **Somewhat Agree** **Agree**

4. At our school, we work to ensure that all parents are involved in supporting their children's schoolwork.

1 **2** **3** **4**
O----------O----------O----------O
Disagree **Somewhat Disagree** **Somewhat Agree** **Agree**

After folding, please staple or tape along bottom edge before mailing.

After folding, please staple or tape along top edge before mailing.

5. Before- or after-school tutoring is provided at my school site to all students who need it.

1 2 3 4
O----------O----------O----------O
Disagree Somewhat Disagree Somewhat Agree Agree

6. Our school has adequate personnel on campus to handle student discipline problems effectively.

1 2 3 4
O----------O----------O----------O
Disagree Somewhat Disagree Somewhat Agree Agree

7. At our school, frequent assessment of all students' performance is conducted and then utilized to improve instruction.

1 2 3 4
O----------O----------O----------O
Disagree Somewhat Disagree Somewhat Agree Agree

8. Our district has given us the flexibility and resources to improve academic achievement at my school site.

1 2 3 4
O----------O----------O----------O
Disagree Somewhat Disagree Somewhat Agree Agree

9. A school-wide emphasis on reading and literacy exists based upon curriculum standards implemented throughout my school.

1 2 3 4
O----------O----------O----------O
Disagree Somewhat Disagree Somewhat Agree Agree

10. I am able to supplement public funding for instruction and/or professional development through non-monetary/monetary incentives actively sought from outside sources.

1 2 3 4
O----------O----------O----------O
Disagree Somewhat Disagree Somewhat Agree Agree

11. The physical condition of my school site adversely impacts student learning outcomes.

1 2 3 4
O----------O----------O----------O
Disagree Somewhat Disagree Somewhat Agree Agree

12. As far as I know, most of the students at my school have gone through a pre-kindergarten program of some sort.

1 2 3 4
O----------O----------O----------O
Disagree Somewhat Disagree Somewhat Agree Agree

13. Our school provides specialized support services to all students who are English learners.

1 2 3 4
O----------O----------O----------O
Disagree Somewhat Disagree Somewhat Agree Agree

14. I invest a majority of my Title I funds in hiring non-professional teachers' aides to assist teachers in the classroom.

1 2 3 4
O----------O----------O----------O
Disagree Somewhat Disagree Somewhat Agree Agree

15. In order of importance, what three factors do you feel best explain the academic performance of students at your school site? (List below or attach longer response.)

_____

_____

_____

Stamp

Senate Office of Research
1020 N. Street
Sacramento, California 95814