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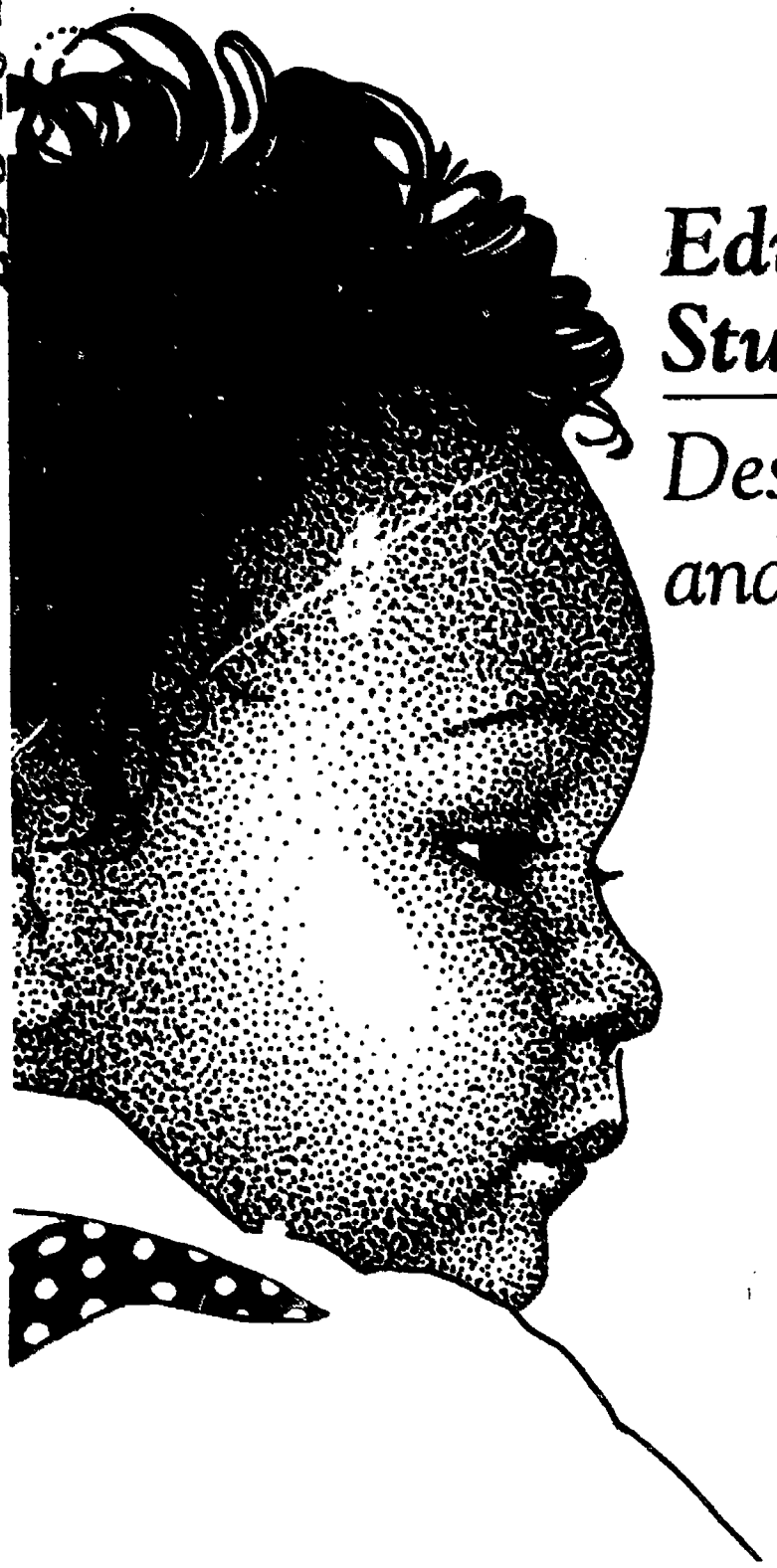
ABSTRACT

This report addresses the issue of how to reform and or restructure the educational system to respond more effectively to the needs of minority students and to prepare minority students for productive service and a better quality of life. In particular, the report discusses the achievement patterns of minority youth enrolled in California public schools and factors that contribute to the differences in the achievement patterns of minority and non-minority youth. Following an introduction, a section on the contextual background highlights the conditions under which California public schools operate. The next section contains a description of achievement patterns and provides profiles of the general achievement patterns of students statewide, with an emphasis on minority student performance. The following section presents the findings of a study of factors contributing to differences in achievement, which used multiple regression analysis with data collected from 6 school years. A section on resource allocation issues notes the difficulty of analyzing information in this area and recommends changes that would make comparison possible. The final section presents the report's four conclusions and three policy recommendations. Included are 13 figures and 34 references. (JB)

California Children
California Families



Educating Minority Students in California

Descriptive Analysis and Policy Implications

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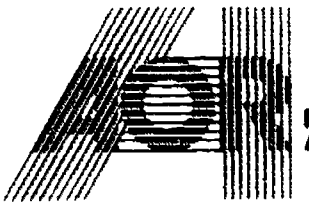
April 1990

Prepared by:

George D. King



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CALIFORNIA CHILDREN, CALIFORNIA FAMILIES

A PREFATORY NOTE

"God's own nursery" — the phrase nicely captures Americans' perennial faith in the family as the moral bedrock of our social and political institutions. Yet there is growing concern that the American family is under siege, not only from the vicissitudes of a changing economy, but by a modern, permissive life style as well. This state of crisis, some proclaim, threatens to render extinct this building block of American society. Many others fear that our values are eroding, our confidence in the future is fading, and the continuity of our democratic way of life is imperiled.

This is not the first time that such concerns have been heard. Indeed, throughout our history, the development of social policies relating to the family have been spurred on and punctuated by the perception that the family has been under threat and in decline. Historians have traced such periods of alarm over family stability as far back as the Colonial period.

Nonetheless, some very real and remarkable changes have occurred within the last few decades in the structure and role of the family and in the environment in which families rear children. Families have become smaller and more diverse: the fastest-growing family type by far is the single-parent family. (Although the two-parent family is still the dominant family type.) Mothers, including those with young children, have entered paid employment outside the home in ever-growing numbers. The instruments of popular communication, notably television, have decisively entered the household and profoundly altered and reshaped the day-to-day affairs of children and parents alike. The family may indeed be "here to stay," as one commentator has put it, but the trend seems inexorably toward diminished family control and influence in the socialization of the young.

Coincident with these changes, we have begun to witness a growing array of signals that the young are under stress and in trouble. Specifically, a great deal of the concern over the family is rooted in what people perceive as an epidemic of problems related to children and youth. For example, we are experiencing alarming rates of:

Teen and Pre-Teen Substance Abuse
Teen Pregnancy
Teen Suicide
Dropping Out of School
Juvenile Crime and Gang Involvement
Sexually Transmitted Diseases
Teen Unemployment

These problems alone should prompt us to move beyond the lament over crisis and, indeed, beyond the mere affirmation that families are important and into the formulation of a public policy agenda for California families.

This will be a difficult undertaking. Family is a universal experience. Everyone at some time belongs to a family, and everyone has beliefs about what families ought to be. In fact, the issues raised by a family policy tap into some of our most closely held beliefs — and into traditions rooted deep in the American experience. Any family policy must contend with these beliefs —many of them fervently held. For example, does a change in family structure necessarily portend a crisis? Are single-parent families, by definition, incapable of functioning as well as two-parent families? A family policy must also grapple with the traditional emphasis of our society, our laws, and our social programs upon the individual, rather than the family, as the measure (and recipient) of all things.

Nonetheless, the progression from concern to policy must be made. The transition can be eased by the realization that we do, in fact, make family policy day to day. Government does things to, and for, the family both explicitly (childcare, family planning) and sometimes unintentionally (housing and land use decisions). All too often these policies are enacted willy-nilly, with no clear overall purpose, failing to take into account recent changes in family life. Senator Daniel Patrick Moynihan has put the point well:

> *. . . in the nature of modern industrial society, no government, however firm might be its wish otherwise, can avoid having policies that profoundly influence family relationships. This is not to be avoided. The only option is whether these will be purposeful, intended policies or whether they will be residual, derivative, in a sense concealed ones.* [***Family and Nation*** (San Diego: Harcourt, Brace, Jovanovich, 1987) pp. 116-17.]

Given both the remarkable magnitude of change in the family landscape, and the very real problems which beset the young, it is a reasonable suggestion that we should begin to think systematically about a family policy agenda for California. Not a single policy agenda, of course. As Senator Moynihan has wryly observed, a comprehensive family policy might be feasible in a small homogeneous society like Iceland, but it is nearly impossible in more heterogeneous nations such as the United States, and out of the question in a place so varied and diverse as the State of California. Nonetheless, the formulation of thoughtful family policies is necessary, and the responsibility falls most appropriately to state governments, since a great many policies and programs which directly impinge on family life are state programs.

California Children, California Families — a series of publications undertaken at the request of the Honorable Willie L. Brown, Jr., Speaker of the California State Assembly — represents a step in this direction. The series aims to heighten legislative and citizen awareness regarding how policy affects families. More concretely, we attempt to:

(1) document and clarify recent demographic trends and their effects on families;
(2) review the history of the evolution of the American family;
(3) establish a system for keeping track of the very large number of bills which the legislature considers each year on family issues; and
(4) spotlight specific trends and policies — in such areas as health, education, foster care, welfare, recreation, childcare, and criminal justice — which are adversely affecting families and which may require legislative attention.

Any single definition of "the family" is fraught with peril, especially in a state as large and culturally diverse as California. Yet some working definition is essential. We define "family" as a *private, non-institutional, child-rearing unit.* Our definition stresses function over form. We believe that most Americans view certain family functions — we term them *public functions* — as so essential to the well-being of children and the polity that few could seriously imagine doing without them or finding effective substitutes for them. Among these public functions of the family are the socialization and teaching of values to the young; the responsibility for maintaining the health of its children; and preparing the young for work upon reaching adulthood.

Government policies, we believe, should strive to enable all families to fulfill these functions — whether the families are single-parent or two-parent, female-headed or male-headed, nuclear or extended, natural or foster. The ***California Children, California Families*** series will attempt to assist legislators in meeting this goal.

This report, ***Educating Minority Students in California: Descriptive Analysis and Policy Implications***, begins to address a critical problem facing California and, indeed, the nation: How can we reform and/or restructure our educational system to respond more effecively to the needs of our "new majority" students and prepare them for productive service and a better quality of life into the 21st century; in order to address the larger question, we must know more. This report develops an academic profile of those schools principally serving the "new majority" students, examines factors contributing to the differences in achievement between low- and high-performing schools, addresses issues of resource allocation and makes several policy recommendations for addressing some of the more critical issues highlighted by the study.

We express our appreciation to Marge Plecki, University of California, Berkeley, for her research contributions; David Stern, University of California, Berkeley, for his assistance in data analyses; and Brian Uslan, Joint Rules Committee on Education Finance, for technical assistance in data compilation, data analyses, modeling and graphics. We thank Dr. Shirley Thornton, Deputy, Specialized Programs, California Department of Education, for partial funding of this project. However, any omissions or errors in the report are the responsibility of George D. King, Principal Consultant, Assembly Office of Research.

I. INTRODUCTION

In 1983, after examining the state of American education, especially as compared with other industrialized nations, and in anticipation of the technological changes of the future, the National Commission on Excellence in Education published **A Nation at Risk**. This report urged that the American public school system adopt comprehensive educational reforms, not only to increase the competency of our students for the existing and traditional job market but also to prepare American youth for future technological advances. That same year, in response to the same concern, the California Legislature adopted and the Governor signed SB 813, the Hughes-Hart Educational Reform Act. This act tightened up curricula, attempted to reduce the dropout rate, increased standards for admission to higher education, provided incentives for a longer school year, established the California Academic Partnership Program, and provided a number of incentives for enhancing administrator and teacher performance.

Although new programs and new monies have made some changes in California's schools, too many of our students are still not ready for the new jobs that advanced technologies and international competition create.

California faces unique challenges as it approaches the 21st century. The sweeping changes occuring across our demographic landscape are of unprecedented proportions. We have added 5 million new citizens to the population within the last seven years, and it is projected that our population will exceed 35 million by the year 2000. What is most challenging for the state, however, is the ethnic composition of this burgeoning growth. It is a different population — nearly 75% of these new residents are Hispanic, Asian, and Black. If current trends continue, by the year 2010 California will become the first mainland state with a population consisting of a "majority of minorities."

Furthermore, a large proportion of these new minorities are children. Currently, at least one out of every nine children in the United States lives in California, and a large proportion are refugees and other limited-English proficient persons. One out of every eight children entering school today is a limited-English speaker, and over 50% of the school-age population is made up of Asian, Hispanic, and Black youth.

The challenge for California and, indeed, the nation is to find creative ways of addressing the intersection of these demographic changes, employment opportunities, and the new demands on education. This is particularly acute for California since 80% of the new entrants in the workforce by the end of this decade will be minorities, immigrants, and women.

As the state moves in the direction of agribusiness, high-tech development, technical services, and small industries, it will need a more highly skilled and educated workforce. These economic transformations are as consequential as the demographic changes and will require a greater commitment to equity and effectiveness in education than has been the case in the past. We must recognize that continued economic growth in this state will depend less on the exploitation of natural resources and more on the development of human resources.

In order to address these challenges to education, the Assembly Office of Research is embarking on studies that will provide better insight into how the education system can address the critical issues facing it.

The first report discusses the achievement patterns of minority youth enrolled in California public schools along with the factors which contribute to the differences in the achievement patterns of minority and non-minority youth; we also include the role of resource allocation as a factor in student achievement. Finally, we present our conclusions and policy recommendations.

II. CONTEXTUAL BACKGROUND

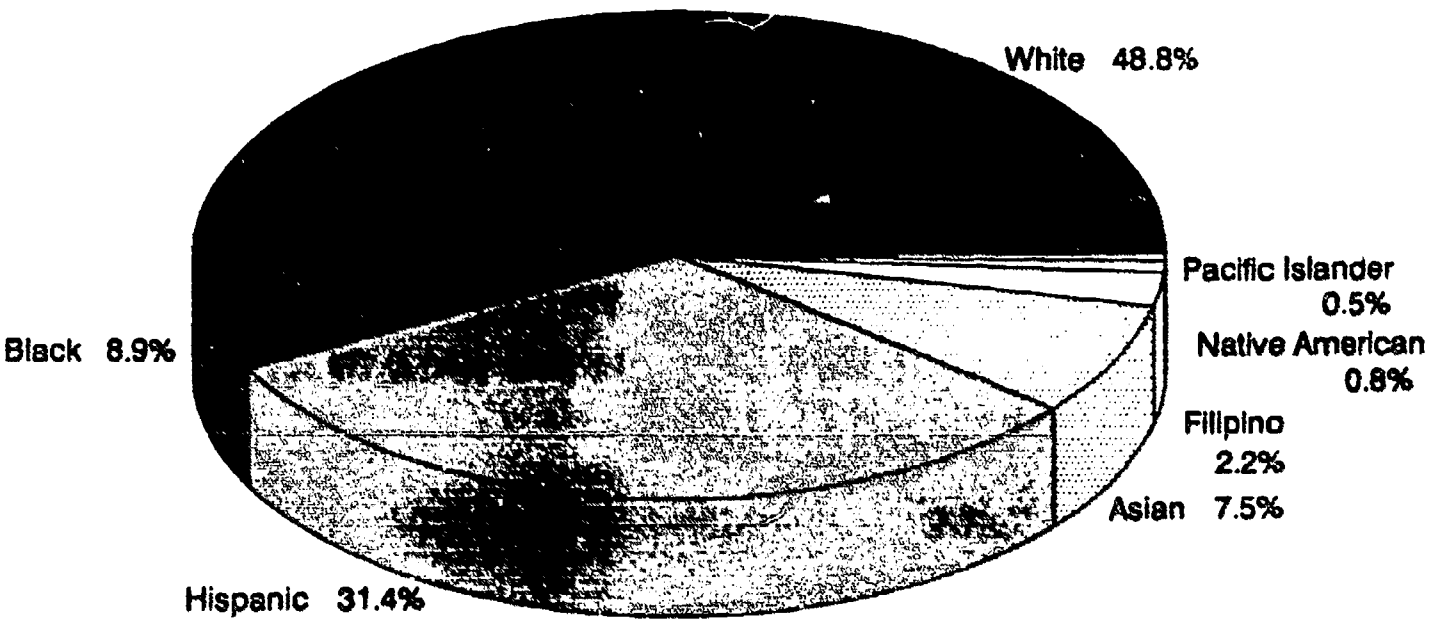
Before beginning discussion of specific aspects of minority student achievement, it is important to highlight the conditions under which California public schools operate. By any standard, California education represents a tremendous undertaking. One out of every nine school children in the United States resides in California. By the 1996-97 school year, public school enrollment in California is expected to reach 5.65 million. This will equal the projected total school enrollment in the 25 smallest states. Enrollment in kindergarten through 12th grade is likely to increase by 140,000 students per year for the next five years. (Guthrie, 1988)

This significant growth rate is compounded by the fact that the racial and ethnic composition of the state has been and will continue to change dramatically. Since 1967, an increasing number of racial and ethnic minority students have been attending California public schools. During the 1988-89 school year the ethnic composition of students attending California public schools became a "majority of minorities" (see Figure 1). During the 1986-87 school year, 80% of new enrollees came from Hispanic or Asian ethnic groups. It is important to note that these changes are unevenly distributed throughout the state, concentrated in only nine of the state's 58 counties. Los Angeles County contains 29% of all of California's public school students. However, 45% of all Black and Hispanic students and 33% of all Asian students enrolled in California public schools are enrolled in Los Angeles County schools. (Kirst, 1989)

Figure 1

Ethnic Composition of California Public School Enrollment, Fall 1988

Total School Enrollment = 4,618,120



Source: California State Department of Education, *Racial or Ethnic Distribution of Staff and Students in California Public Schools 1988-89*, 1989.

Note: Totals may not add up to 100 percent because of rounding.

For some ethnic groups, this concentrated change in demographics has resulted in an increase in the percentage of minority students attending racially isolated schools. For example, between 1967 and 1984 the percentage of Hispanic students attending school in which the minority population comprised more than 50% of the school enrollment increased from 33% to 48%. Changes in enrollment patterns are probably more dramatic than simple statistics suggest, due to the higher dropout rates among several minority groups.

In addition to racial and ethnic diversity, California public schools are characterized by unusually high percentages of limited-English speakers and children who are born into poverty. One out of every eight children entering California public schools is not proficient in English. In 1987, Los Angeles County schools enrolled approximately 140,000 students who are limited-English speakers.

A significant increase in the number of California children living in poverty has been noted since 1980. Since 1981, the percentage of children in California living below the poverty line has exceeded the national average (see Figure 2, pg. 5). The rate of poverty among single-parent, female-headed households is particularly acute, but the majority of children in California who are living in poverty (approximately 52%) live in households where both parents are present. For some minority groups, the rate of poverty for families in California is higher than the national average (see Figure 3, pg. 5). (Kirst, 1989)

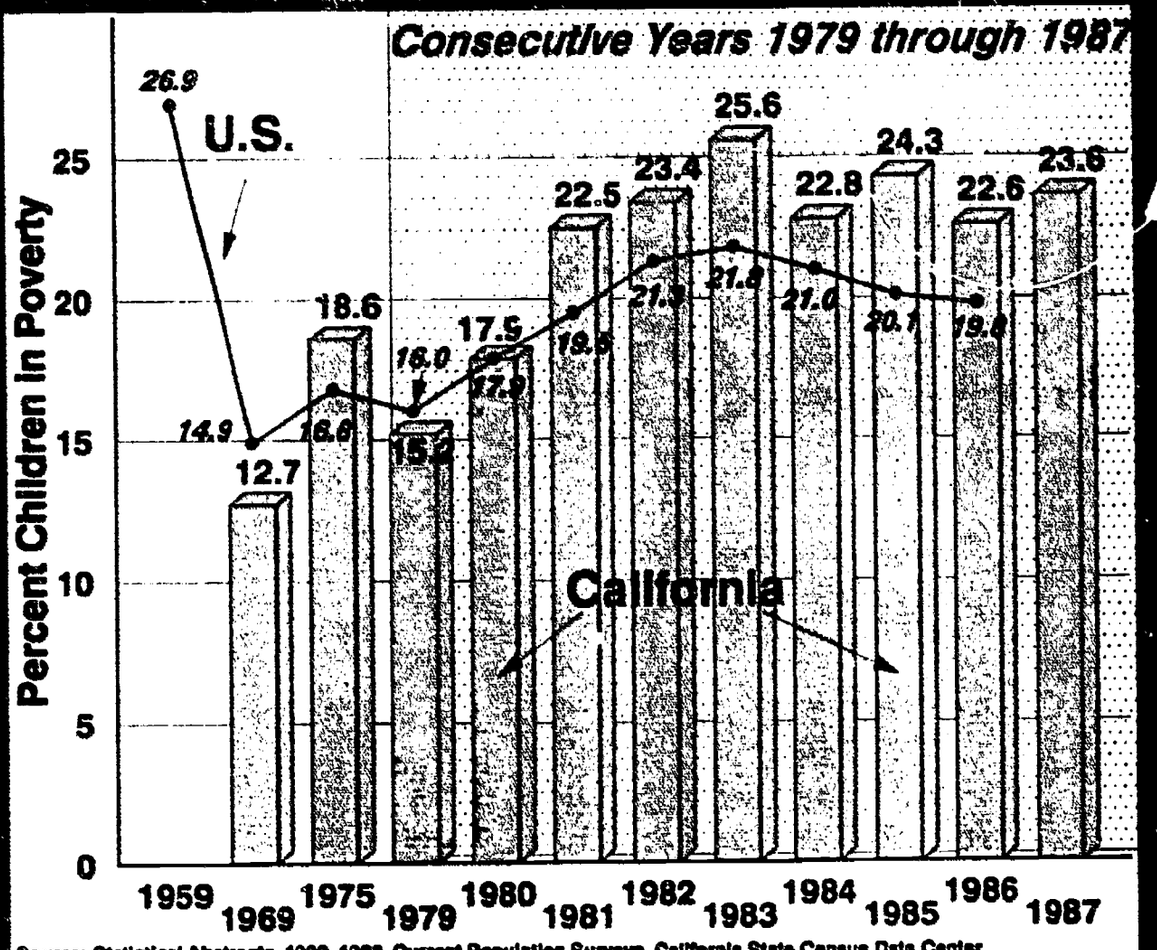
California public schools are faced with the challenge of preparing its students to enter a sophisticated workforce. Long-term economic forecasts (1992-98) indicate that California will outperform the nation on several indicators of economic growth. (Commission on State Finance, 1988; Data Resource Corporation, 1988) The labor force and employment growth rates in California are projected to be three times the national average (2.4% as compared to 0.8% nationwide). The need for a highly skilled workforce will increase during the next 10 years, particularly in the Sun Belt states. Since the average age of the worker is rising, there will be increased dependence on younger workers to fill positions vacated by increasing retirement rates. Entry-level workers will be responsible for the taxes required to support the rising number of adults approaching retirement.

In addition to students contributing to future economic productivity, there is the additional issue of school dropouts regarding the costs attributable to poor achievement. For example, school dropouts are approximately four times as likely to have trouble with the law, and a female high school dropout is nine times more likely to be on welfare than a female high school graduate. (Haycock and Navarro, 1988)

This unprecedented array of the context in which California schools operate represents both a challenge and an opportunity. Given the link between education and the economy, quality education for all students is imperative to the social, political, and economic health of California.

Figure 2

Poverty Among Children in California and the Nation, 1959 through 1987



Source: Statistical Abstracts, 1982, 1988, Current Population Surveys, California State Census Data Center

Figure 3

Selected Characteristics of Children in California and the Nation Living Above and Below the Poverty Level, 1985-86

	Percent of Children from Families with Incomes:					
	Below the Poverty Line		1-1.99 X the Poverty Line		2 X the Poverty Line and Above	
	California	U.S.	California	U.S.	California	U.S.
All Children	21.0 %	20.7 %	21.5 %	22.9 %	57.5 %	56.4 %
White (52.6)	26.0	44.5	37.0	65.9	68.1	83.6
Black (7.9)	12.0	32.3	7.9	17.7	6.4	7.6
Hispanic (29.3)	48.9	19.0	45.9	13.0	15.9	5.4
Other (Asian)(10.3)	13.1	4.2	9.3	3.3	9.6	3.2
Two parents (74.2)	51.9	40.6	71.7	71.8	83.3	86.4
Mother only (19.9)	41.3	51.3	22.4	22.2	11.1	9.2

Note: Based on the federal government's essential market basket index, in 1986 the income level for poverty was $11,203 for a family of four, $8,737 for three, and $7,138 for two. Figures in parentheses at left indicate the percentage for the total California child population.

SOURCE: Current Population Surveys.

Figures 2 and 3 adapted from PACE, *Conditions of Children in California*, 1989.

III. DESCRIPTION OF ACHIEVEMENT PATTERNS

The purpose of this section is to provide a profile of the general achievement patterns for students statewide, with emphasis on minority student performance. Information used in this analysis derive from data compiled from California State Department of Education data tapes and from data referenced in studies published by Policy Analysis for California Education (PACE), the California State Department of Finance, the California State Census Data Center, the Institute for Educational Leadership, and The Achievement Council.

Since 1983, various educational reform measures have been implemented nationwide. California's response to public demand for educational improvement has resulted in changes, such as the establishment of increased graduation requirements, increased rigor in curriculum and textbook standards, and longer school days. When looking at general performance indicators irrespective of ethnic grouping, there has been an increase in achievement statewide during the past five years. Figure 4 (see pg. 8) graphs the general achievement trends for grades 3, 6, and 12, as measured by the California Assessment Program (CAP). California students are improving their performance on the Scholastic Aptitude Test (SAT), but the increase has occurred almost totally on the math section (see Figure 5, pg. 9). There are also greater numbers of students taking the SAT exam.[1] Scores for Black students have risen at rates higher than those for Hispanic, Asian, and white students. All groups slightly lag behind national averages, but the average performance of California minority students on the SAT consistently lags behind California white students (see Figure 6, pg. 10).

When examining minority student test performance on the California Assessment Program, the general trend is that all of California's ethnic minorities are improving. The achievement gains are in fact increasing at a rate greater than the rate for white students. Despite these signs of improvement, there are persistent gaps in performance between white students and students from racial and ethnic minorities. In general terms, minority student performance is between 20% and 30% less than the performance of white students. (Guthrie, 1988)

For the purposes of this study, a more detailed analysis of student performance on the California Assessment Program was conducted using information from the 1988-89 school year, the most recent data available. The general design for this comparison was to select the highest and lowest performing schools serving between 80% and 100% of students in the following population groups: white, Black, Hispanic, and Asian. The performance of white, Black, and Hispanic groups was examined for grades 3, 6, 8, and 12.[2] When possible, 50 schools (25 highest performing and 25 lowest performing) were included in the analysis for each racial and ethnic group for each grade level. There were several instances in which 50 different schools did not exist which served 80% to 100% enrollment for each group. The exact number of schools analyzed for each component of the analysis is presented in Figure 7 (see pg. 11).

For this analysis, a composite CAP score was used. This composite CAP score is the average of the different CAP scores provided for each of the tests given in grades 3, 6, 8, and 12.[3] When comparing the average composite CAP score of the highest performing schools by group and the lowest performing schools by group, it is evident that a significant gap exists between the performance of schools serving predominantly white enrollments and the performance of schools serving predominantly Black and Hispanic students (see Figures 8 and 9, pg. 12).

---

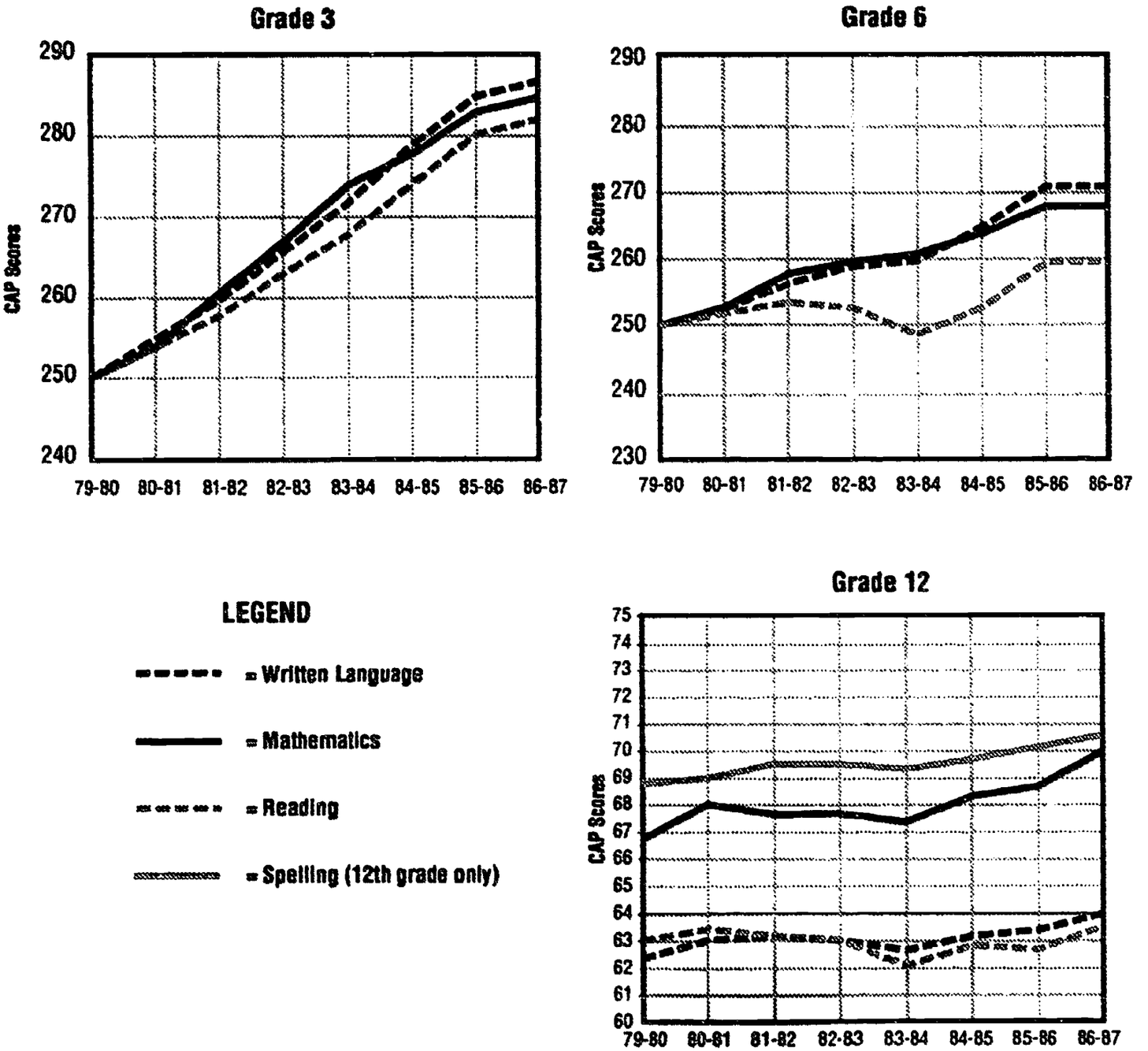
[1]College Board

[2]The Asian group was not included in this analysis for 1988-89 because with the exception of 3rd grade in which there were only two schools there were no schools serving between 80% and 100% Asian enrollment for grades 6, 8, and 12

[3]Besides the analysis of composite CAP scores CAP scores for the individual subject areas were also examined This analysis did not reveal any differences in the types of conclusions drawn from data using the composite CAP score

Figure 4

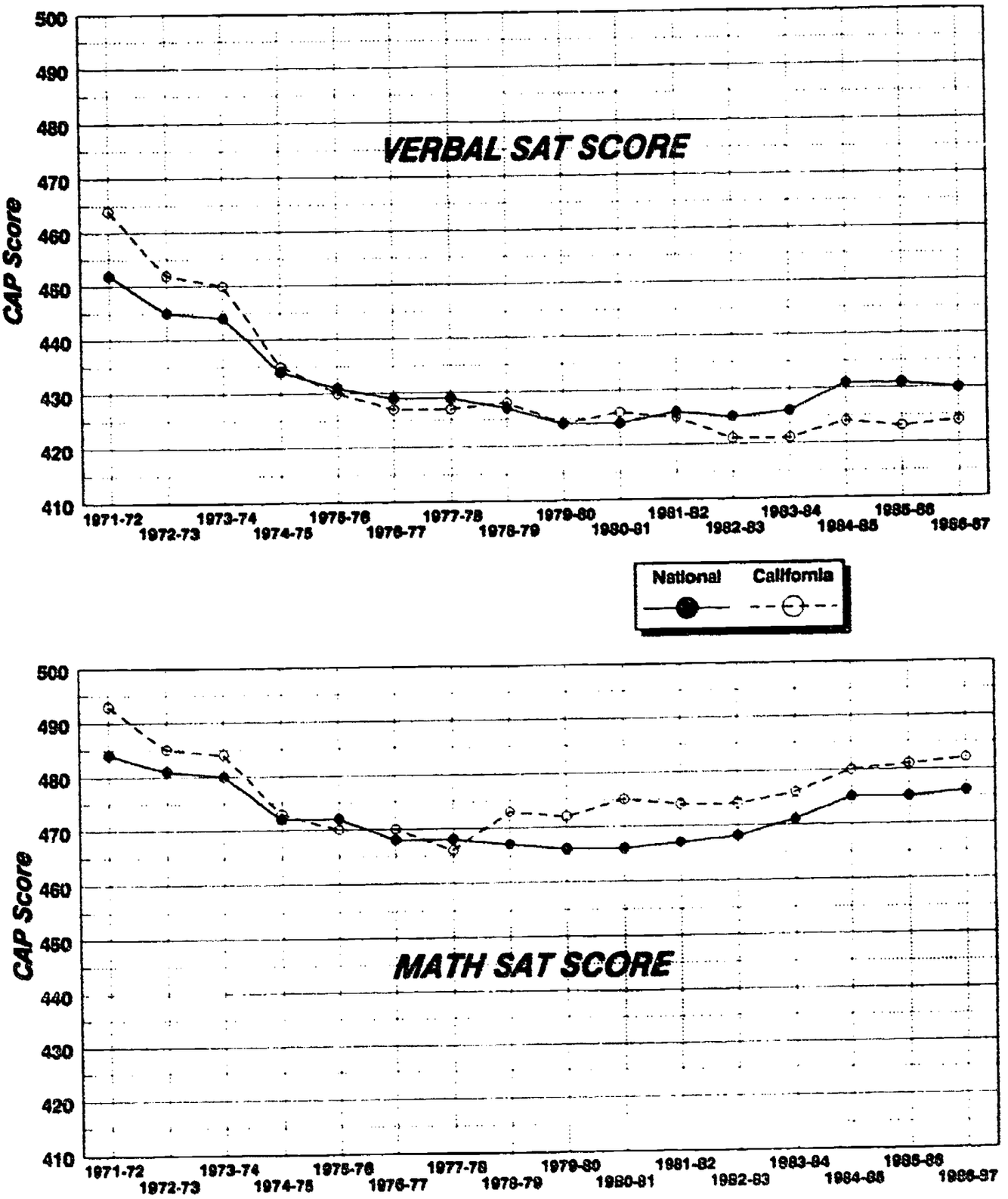
California Assessment Program (CAP) Scores for Grades 3, 6, and 12 1979-80 through 1986-87



Source: PACE, *Conditions of Education in California*, 1988.

Figure 5

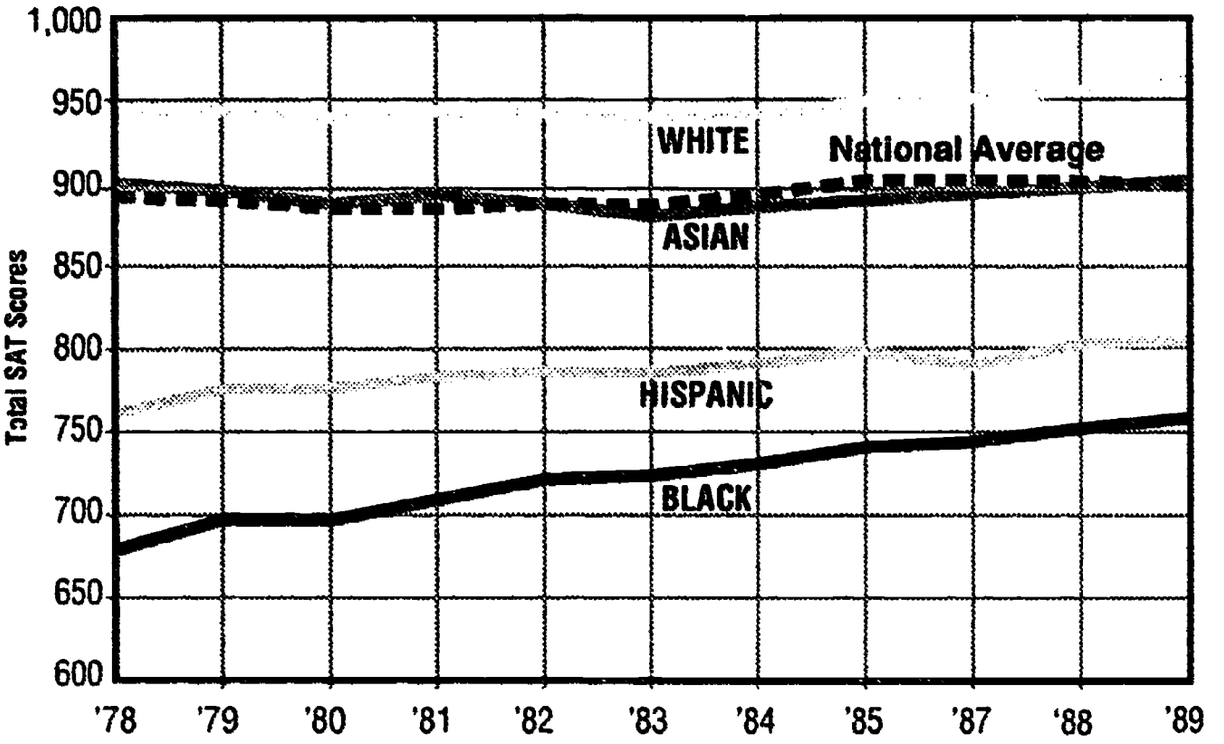
Schloastic Aptitude Test (SAT) Scores for California and the Nation, 1971-72 through 1986-87



Adapted from: FACE, *Conditions of Education in California*, 1988.

Figure 6

SAT Scores (Math and Verbal Totals) by Ethnic Group for California and the Nation, 1978 through 1989*



% INCREASE, 1978 to 1989

White	**= + 1.9%**
Asian	**= + 0.3%**
Hispanic	**= + 5.6%**
Black	**= +11.8%**
National Average	**= + 0.7%**

*SAT scores by ethnic group are not available for 1986 due to changes in the Student Description Questionnaire that students complete when they register for the tests.

Source: College Board, and PACE, ***Conditions of Education in California,*** 1988.

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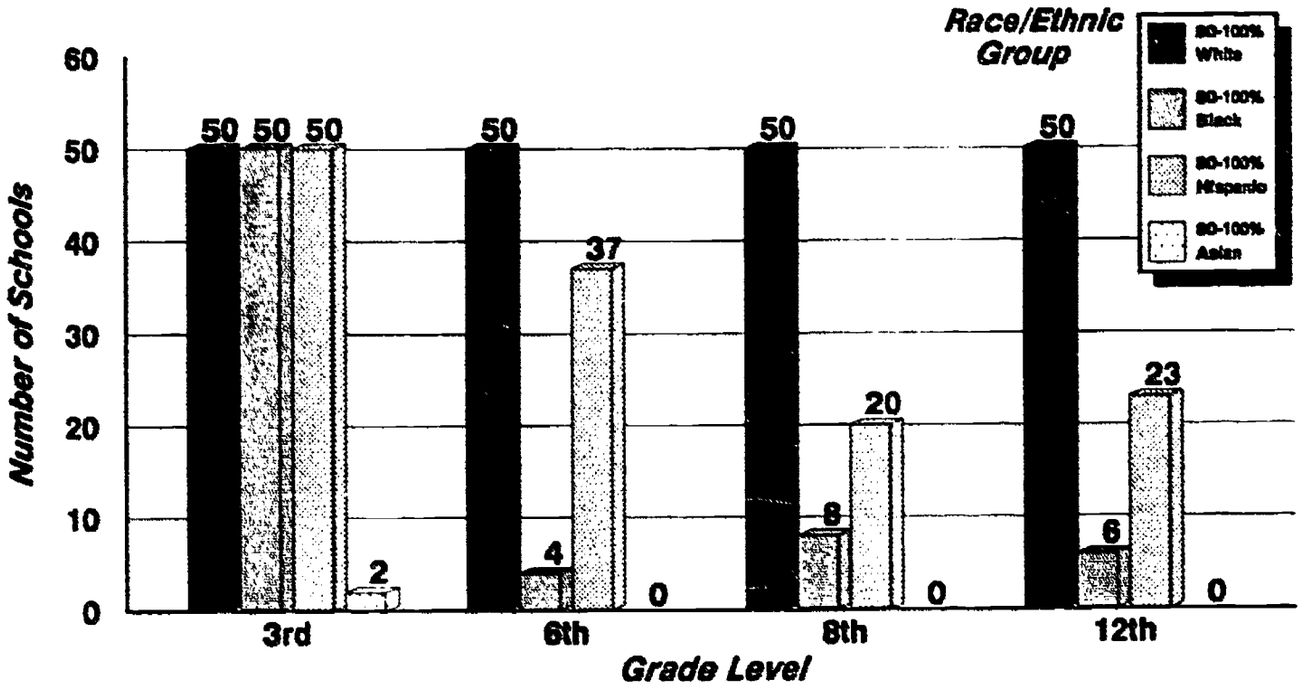
17

Figure 7

Number of Schools Included in the Analysis of the Highest and Lowest Performing Schools by Ethnic Group, 1988-89



One result of this analysis is that schools serving predominantly Black and Hispanic students scored at least 25% less than the average score of schools serving predominantly white students in grades 3 and 6, and at least 45% less than the average score in grades 8 and 12.

Figure 10 (see pg. 12) presents the differences in composite CAP scores between the highest and lowest performing schools by group. For example, the average composite CAP score in 3rd grade for the highest performing 25 schools with 80% to 100% Black enrollment is 38 points higher than the lowest performing 25 schools having 80% to 100% Black enrollment (211 as compared to the high average score of 249). For schools with 80% to 100% white enrollment in 3rd grade, the difference between the average score for the 25 highest and 25 lowest performing schools is 146 points (an average of 236 as compared to 382). Figure 10 (see pg. 12) illustrates that schools serving predominantly white students have a wider range of performance between the highest and lowest performing schools than schools in the Black or Hispanic groups.

An additional comparison was made between the lowest performing schools with 80% to 100% white enrollment with schools serving 80% to 100% Black and Hispanic enrollment. The average achievement of the 25 lowest performing schools serving 80% to 100% white enrollment is greater than the average performance of the highest performing schools serving 80% to 100% Black enrollment or 80% to 100% Hispanic enrollment (see Figure 11, pg. 13) for all but 3rd grade students.

In addition to performance on CAP, this analysis of the highest and lowest performing schools also

Figure 8

Comparison of Average Composite CAP Scores for the Highest Performing Schools by Ethnic Group, 1988-89

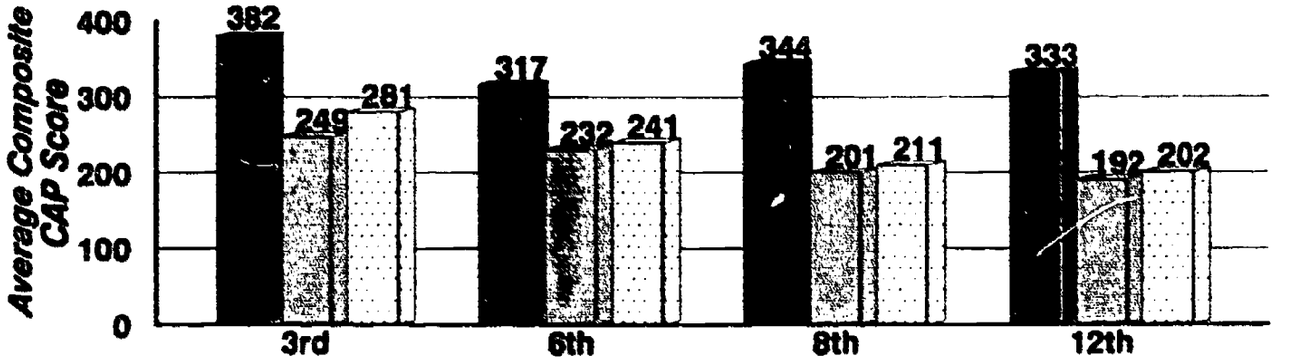


Figure 9

Comparison of Average Composite CAP Scores for the Lowest Performing Schools by Ethnic Group, 1988-89

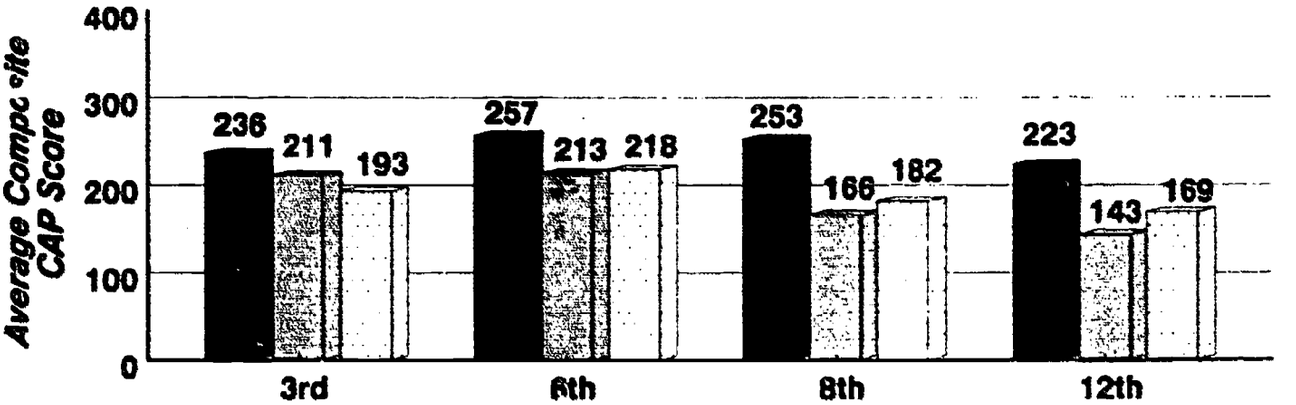


Figure 10

Differences in Average Composite CAP Scores Between the Highest and Lowest Performing Schools by Ethnic Group, 1988-89

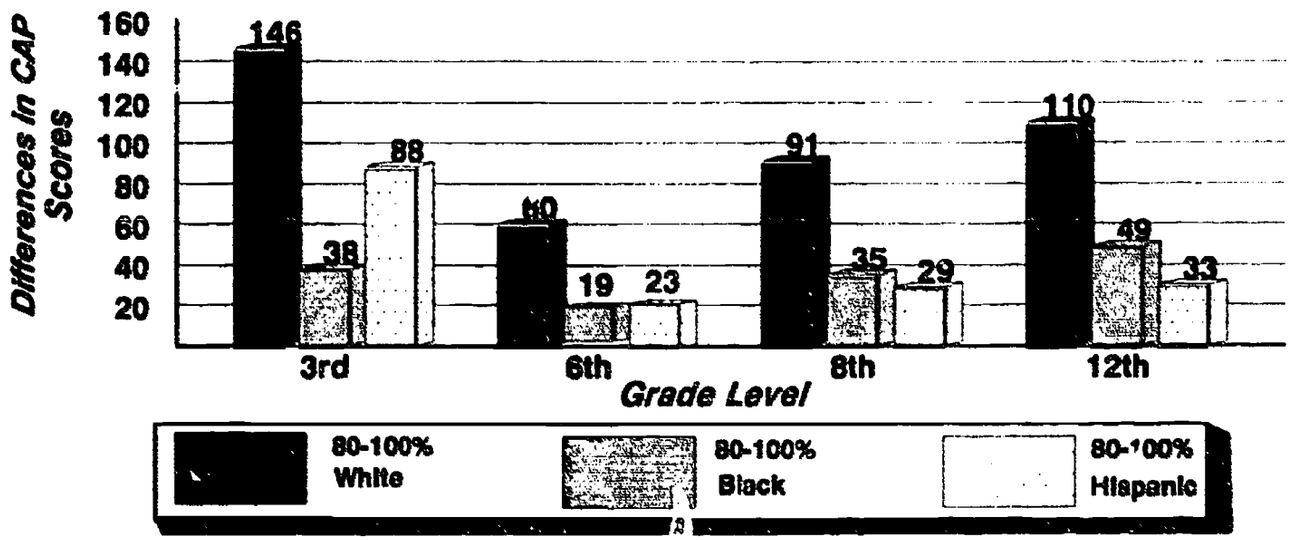
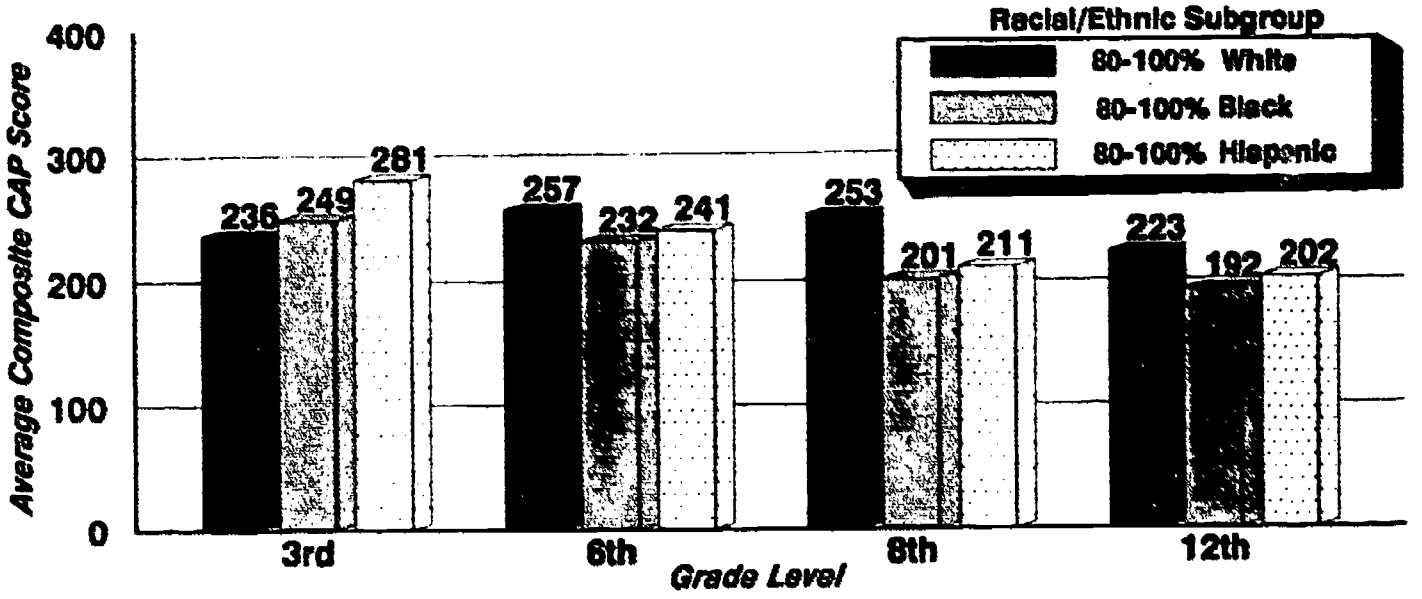


Figure 11

Comparison of Average Composite CAP Scores for the Lowest Performing Schools in the White Group with the Highest Performing Schools in the Black and Hispanic Groups, 1988-89



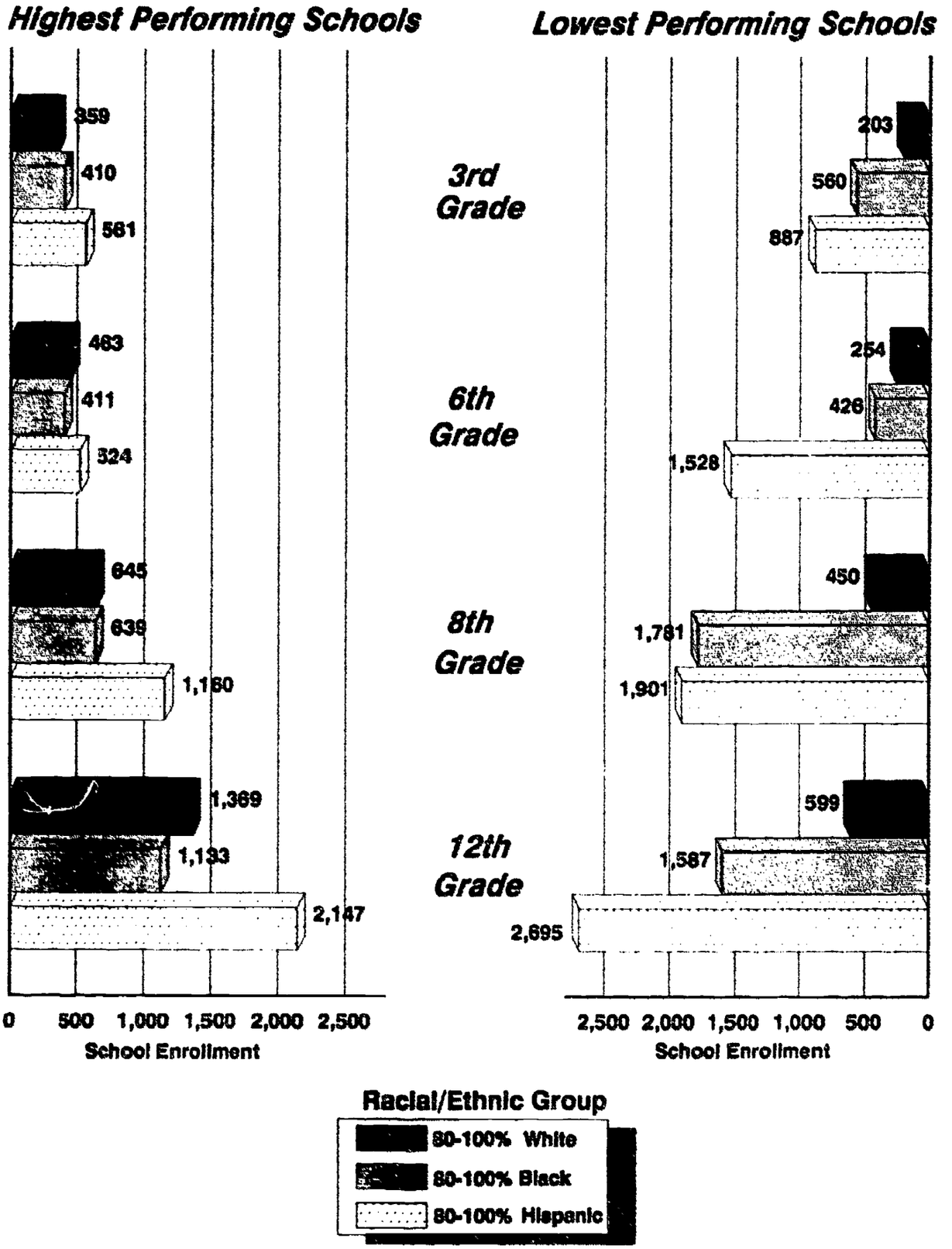
examined the average enrollments (or school size) for each group (see Figure 12, pg. 14). The lowest performing schools in the white group are consistently characterized by lower school enrollments than the highest performing schools in the white group. The lowest performing schools in the white group are almost without exception located in rural areas.

On the contrary, the lowest performing schools for the Black and Hispanic groups are characterized by unusually high total enrollments. This is particularly true for the Hispanic group. For example, the average school size for the highest performing schools in the 6th grade for the Hispanic group is 524 as compared to a total average enrollment of 1,528 for the lowest performing schools. This represents a school size almost three times larger in the lowest performing schools. In addition, the highest performing schools in the Black and Hispanic groups often have higher average enrollments than the highest performing schools for the white group. For the most part, minority students are served in urban school settings. It is possible that the unusually large school setting may make educational improvement efforts more difficult to implement. For example, strategies designed to increase teacher collegiality and participation in school decision-making may be more difficult to implement in schools serving 2,000 to 3,000 students.

Further examination of the size of schools, particularly at the elementary level, is needed to determine what other factors are associated with smaller size. This can be done by selection of a sample of large, medium, and small schools with similar achievement patterns and racial and ethnic compositions and conducting a qualitative analysis regarding other conditions of the educational environment.

Figure 12

Average Enrollment for the Highest and Lowest Performing Schools by Ethnic Group, 1988-89



In order to determine whether the data from the 1988-89 school year was representative, the same analysis as described was conducted with data from the 1986-87 school year. The results are not significantly different from the analysis using 1988-89 data, thus indicating that the data are, most likely, representative.

Enrollment in courses which are required for college admission was also examined as another measure of student achievement. Although improvements have been made in the percentages of minority students who enroll in academically-oriented secondary classes, Black and Hispanic students continue to be underrepresented in courses which are required for admission to the California State University system and the University of California. In addition, schools with large percentages of low income and minority students generally offer fewer academic courses in secondary schools. (Guthrie, 1988) Figure 13 (see pg. 16) displays percentage enrollment in advanced subject matter courses by ethnicity. Disparities exist between the enrollment rates of Black and Hispanic students as compared to Asian and white students.

The picture of student achievement at the secondary school level is clouded by the differential dropout rates. Dropout rates for Black and Hispanic students (47.7% and 46.1%, respectively) are significantly higher than those for white and Asian students (28.1% and 13.7%, respectively). Consequently, information on 12th grade attendees does not represent the true disparity of student achievement across all ethnic and racial groups. (Department of Education, 1989)

No overwhelming quantitative data exist which demonstrates the factors contributing to the differences between the highest and lowest performing schools serving predominantly minority students.[4] Analysis of information from the California Basic Educational Data System (CBEDS) for the 1988-89 school year shows no significant differences in teacher education levels, years of teaching experience, or principal/teacher ratios between the highest and lowest performing schools serving predominantly minority students. One of the difficulties is that CBEDS data are incomplete for all schools statewide. However, examples exist of schools serving high concentrations of minority students which are making significant improvements in student achievement while other schools continue to perform poorly.

Schools serving high percentages of minority students are typically located in poor urban areas. A study of 31 urban schools nationwide asked teachers to describe working conditions. The schools rated as worst were characterized as follows: "lack of resources, low staff collegiality, poor professional development, little teacher influence over school decisions, few rewards, and poor leadership." The schools rated as best had "an adequately maintained physical plant, staff collegiality, participation in decision-making, and sensitive but strong administrative leadership." (Corcoran, et. al., 1988) Other studies of low-performing schools point out that the communities surrounding such schools are not usually strongly united, thus making community support for improvement more difficult to acquire and utilize. (Turman, 1987; Wehlage, et al., 1989) This suggests that making improvements in schools requires a multitude of strategies be employed which will bolster the general educational environment.

Continued investigation is needed to assist schools serving minority students in identifying the critical factors involved in making significant improve-ments in student performance. Projects designed to assist such schools are currently underway. (Haycock and Navarro, 1988; Hill, et al., 1989) Generally speaking, these efforts cite common goals and high expectations and standards as having a positive effect on student achievement, but only when individuals (teachers and parents) at the school site level have opportunities to make and implement decisions regarding how the expectations will be met in an atmosphere of professionalism and cooperation.

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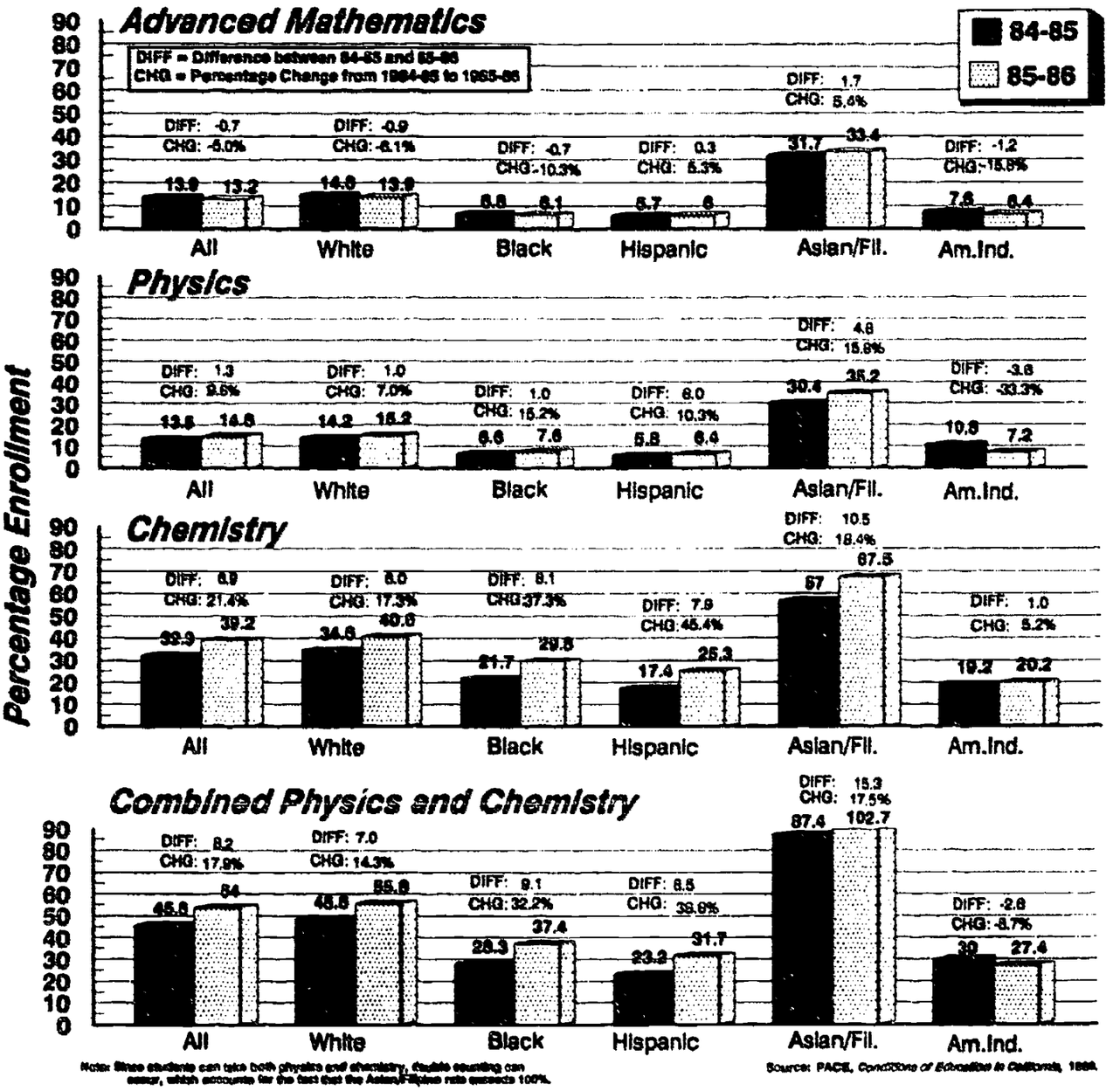
[4]The CBEDS data base is particularly incomplete with regards to teacher salary information. Several studies of teacher salary effects have used salary schedules collected from each individual school district. This data collection effort was beyond the scope of this study.

Issues, such as teacher collegiality, community support services, student participation levels, staff development, partnerships with private industry and institutions of higher education, decision-making models, and incentives for innovative strategies, should be evaluated carefully in those schools which are making significant improvements in minority student achievement.

Simply put, the achievement of Black and Hispanic students enrolled in California public schools is substantially different from the achievement of white and Asian students. Although gains in achievement for Black and Hispanic students have been made in the past five years, there still exists a gap in the achievement of these students as compared to white and Asian students.

Figure 13

Enrollment in Advanced Courses by Ethnicity and Subject, 1984-85 and 1985-86



Note: Since students can take both physics and chemistry, double counting can occur, which accounts for the fact that the Asian/Filipino rate exceeds 100%.

Source: PACE, *Conditions of Education in California*, 1988.

IV. FACTORS CONTRIBUTING TO DIFFERENCES IN ACHIEVEMENT

This study used multiple regression analysis to examine a number of factors which previous research identified as relevant to student achievement. Data collected for six school years (1983-84 through 1988-89) by the California State Department of Education through the California Assessment Program (CAP) and the California Basic Educational Data System (CBEDS) were included in the analysis.

The specific statistical technique used in this portion of the analysis was stepwise multiple regression. First, a model is developed including the factors which can reasonably be asserted to be related to student achievement. Stepwise regression provides information regarding which of the factors in the developed model are significantly associated with student achievement, whether they are positively or negatively related to student achievement, and in what order of magnitude.

The model proposed in this analysis assumed that the following factors are related to student achievement: the proportion of the student body who are limited-English speakers, the socioeconomic conditions of the students' families, the enrollment size of the school and the grade, teacher salaries, the principal/teacher ratio, and the site administrator/student ratio. This model was applied to a total of 36 data sets, which measured performance on reading, writing, and mathematics for grades 3, 6, 8, and 12 for the three school years 1984-85 through 1986-87. We looked at the data for the six-year period but only used the sets for 1984-85 through 1986-87 for our analysis. A sample run showed no appreciable difference for the other years.

The results of this analysis, which are consistent with similar studies in the educational research literature regarding predictors of student achievement, indicated that the higher the education and economic level of the household, the higher the student achievement. Thus, measures of socioeconomic condition continue to be the single most important predictor of student achievement. This relationship holds true irrespective of racial or ethnic background. Generally speaking, the results from the regression analysis indicate that measures of parental education and income levels were associated with 35% to 50% of the variance in student achievement.

The pattern, over the three-year period which was examined, shows that after accounting for measures of socioeconomic condition, other variables explaining achievement differences among individual schools are: 1) percentages of limited-English speakers, 2) measures of school size, 3) teacher salaries, and 4) principal/teacher ratios. These factors have been listed in their relative order of importance in explaining achievement differences. Increased student achievement is associated with schools which have lower percentages of limited-English speakers, smaller average enrollments, higher average teacher salaries, and lower principal/teacher ratios. When examining performance on the California Assessment Program (CAP) in grades 3 and 6, larger school size, as measured by total school enrollment, is consistently and significantly associated with lower student achievement. Schools serving high percentages of minority students typically have larger enrollments in the elementary grades than schools serving high percentages of white students.

Schools serving high percentages of minority students are almost without exception serving high percentages of children in poverty, thereby multiplying the difficulties faced by such schools. In the past, strategies such as categorical assistance and urban impact aid have typically been used as methods for addressing the need for additional resources to serve this population of

students. The effect of these additional resource allocations has not been conclusively determined.

The regression technique used in this analysis is most appropriately employed as an indicator of areas needing further investigation rather than conclusive proof regarding the variables affecting student achievement. The analysis is limited by the lack of complete information on all factors for all schools in the state and by the fact that quantitative data can only serve as a proxy for complicated conditions and performance in the educational setting. Therefore, the above listed factors should be examined in greater detail through the use of qualitative investigation at the local level to better understand the dynamics of schools which vary in their indicators of student performance.

V. RESOURCE ALLOCATION ISSUES

A frequently asked question by educators, researchers, policymakers, and the public is: "Do additional funds make a difference in improving student achievement?" Although this appears to be a rather simple and basic question, it is in fact an extremely complicated area to analyze. Data collected statewide on per pupil expenditures use the individual school district as the unit of analysis. Average district per pupil expenditures served as the basic data base for determining school finance reform measures under the *Serrano v. Priest* decision. However useful these data might have been in the past, the current system for collecting fiscal data on General Fund expenditures does not allow for an analysis of equity of expenditures on a school by school basis. With an increased emphasis on school site management and decision-making, it becomes even more pertinent to be able to describe school by school expenditure differences.

During the past 25 years, numerous research studies have examined the relationship between per pupil expenditures and student achievement with varying results. (Childs and Shakeshaft, 1986; Hanushek, 1989) These studies have usually employed district average per pupil expenditure as the measure for the amount of resources provided. However, instruction is not delivered at the district level and costs can vary significantly between schools in the same district, as well as between neighboring districts. Per pupil expenditures will vary for a number of reasons even among schools within the same district: differences in placement of teachers on the salary schedule, or variability in transportation, general maintenance, security, and energy costs are but a few examples. In addition, districts differ in their relative growth rates and may vary substantially in the fixed costs of operating schools due to fiscal commitments for capital outlay. Differences in human and material resources are important areas to examine when investigating the performance of individual schools. At a 1988 conference of national experts in school finance research, the need for "micro-level" data bases was a primary recommendation. School and classroom level fiscal data can assist in addressing the difficulties encountered when examining the relationship between expenditures and student performance.

It is possible to conduct an analysis of the relationship between expenditures and minority student performance. This type of analysis has not been undertaken in this report because of the lack of reliable fiscal data for individual school sites. The use of district averages, especially for the larger school districts where the preponderance of minority students are served, will very likely mask differences among schools located within the same district. At this time, it is not possible to determine whether schools serving significant percentages of minority students are actually being provided with the resources allocated to serve the needs of students at the classroom level. One of the issues currently being litigated *(Rodriquez, Seals, Williamson, and Autran v. Los Angeles Unified School District)* challenges the assumption that per pupil expenditures are being equitably distributed among the schools within the Los Angeles Unified School District. The plaintiffs in this case contend that schools with lower per pupil expenditures are disproportionately attended by poor and minority students.

The use of a statewide uniform accounting code, which is school specific, would allow for analysis by instructional expenditure and by administrative categories, such as staff salaries, maintenance, operations, and transportation. Such data would greatly assist policymakers and education professionals better understand the conditions under which educational services are being delivered. The development of a statewide accounting system using universally agreed upon budget categories would allow for the following: 1) more appropriate comparisons among districts statewide, 2) accurate comparisons among schools within a district, and 3) more accurate comparisons among schools across the state. Ideally, this

model should be eventually applied to the classroom level, as this is the level at which educational services are provided.

Examples of school site fiscal data collection using uniform accounting codes exist in, or are currently under consideration by, the following states: Florida, Massachusetts, Georgia, and Oregon. The development of such a fiscal accounting code should include the examination of methods considered or used in other states, as well as the involvement of a team of professionals from the local school site, local district, and state levels.

VI. CONCLUSIONS AND POLICY RECOMMENDATIONS

Based on available data and within the limitations of this study, the following conclusions and recommendations are provided.

Conclusion 1. Gains have been made in the achievement of Black and Hispanic students since the implementation of educational reform efforts five years ago. However, there continues to be a persistent and significant gap between the performance of white and Asian students and the performance of Black and Hispanic students in California public schools. The differences are extremely acute when comparing the performance of schools serving predominantly Black and/or Hispanic students with schools serving predominantly white students.

Conclusion 2. Schools serving high percentages of Black and Hispanic students have significantly larger average enrollments than schools serving high percentages of white students. This is particularly true for Hispanic students at all grade levels.

Recommendation: Policies for improving low-performing schools serving primarily Black and Hispanic students should consider reducing the size of the school unit. This can be accomplished by either designing smaller individual schools or considering the "school within a school" concept.

Conclusion 3. Current practice statewide requires that fiscal data be collected using the school district as the unit of analysis rather than the individual school site. Therefore, it is not possible to determine whether actual resource differences exist among schools serving primarily Black and Hispanic students as compared to schools serving primarily white students.

Recommendation: Expenditure data should be collected so it is possible to determine per pupil expenditures by school site. The data to be collected should be standardized statewide, using expenditure categories which are easily understood by the public. The actual design of the school level data system should consider input from a group of local administrator and teacher groups and should examine models in use, or currently under consideration by, at least four states. School personnel at the school site level should receive training and assistance from the school district in order to ensure that data collection is uniform and does not pose an excessive burden on site personnel.

Conclusion 4. No overwhelming quantitative data exist which demonstrates the factors contributing to the differences between the highest and lowest performing schools serving predominantly minority students.

Recommendation: Continued investigation is needed to assist schools serving minority students in identifying the critical factors involved in making significant improvements in student performance. A number of projects designed to assist such schools are currently underway. Issues, such as teacher collegiality, community support services, student participation levels, staff development, partnerships with private industry and institutions of higher education, decision-making models, and incentives for innovative strategies, should be considered when examining schools which are making significant improvements in minority student achievement.

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