UNIVERSITY OF CALIFORNIA, SAN DIEGO

High Schools that Bridge the Achievement Gap

A Dissertation submitted in partial satisfaction

of the requirements for the degree Doctor of Education

in

Teaching and Learning

by

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The Dissertation of Michael Hargrove is approved, and it is acceptable in quality and

form for publication on microfilm.

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Chair

University of California, San Diego

2007

DEDICATION

Linda, I'm home.

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LIST OF ABBREVIATIONS

API   Academic Performance Index. California's school accountability index

     scores schools on a scale of 400 to 1000 based student performance on

     standardized assessments. Each significantly sized subgroup also receives

     an API.

AYP   Adequate Yearly Progress. The California version of the US school

     accountability measure sets a minimum percentage of students who must

     score proficient or above on standardized state assessments. Entire schools

     as well as significantly sized subgroups must meet this percentage or face

     sanctions. For California high schools, AYP is based upon sophomores

     scoring at least 380 on the CAHSEE.

CAHSEE California High School Exit Exam. Students must pass this two part exam

     in English/Language Arts and in Math in order to graduate. Their first

     attempt in the winter of their sophomore year; they have additional

     opportunities to pass the exam during their junior and senior years. API

     calculations include CAHSEE pass results for high schools.

CDE   California Department of Education.

CST   California Standards Test. Standardized tests that are given annually in

     grades two through eleven. They are designed to test student performance

     on the California state standards. API is largely derived from student scores

     on the CSTs.

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I want to thank the principals who took valuable time from busy schedules to answer a long survey from a stranger. Your responses showed your passion for our shared profession and your compassion for the adolescents that your schools serve. I am particularly thankful for the principals who helped me field test my survey.

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ABSTRACT OF THE DISSERTATION

High Schools that Bridge the Achievement Gap

by

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Doctor of Education in Teaching and Learning

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This study examines comprehensive high schools in California, focusing especially on those having the greatest academic success with large populations of students who are traditionally under-represented in higher education. It first gives a quantitative statewide overview of academic performance relative to school demographics. Using data collected by the state during the 2004-05 school year, the study identifies high schools with large African American, Hispanic, and/or

socioeconomically disadvantaged populations that have the highest academic performance as measured by California's Academic Performance Index (API). It compares the practices of these higher achieving schools with schools of similar demographics that are less successful. The study focuses on several school-related factors that differentiate high performing schools with large under-represented populations from lower performing schools with similar demographics.

The research follows a three-stage process. It first examines the statewide patterns of high school performance as measured by California's Academic Performance Index (API) particularly in relation to student groups that are traditionally under-represented in higher education. Secondly, the research identifies schools with large populations of African American, Hispanic, and/or socioeconomically disadvantaged students that have either very high or very low APIs, then statistically explores the differences between these schools on a variety of publicly available student achievement and staff characteristics data. Lastly, this quantitative data is integrated with survey responses from principals at a sample of the previously identified schools.

The discrepancies between African American, Hispanic, and SED subgroup APIs on the one hand and Asian and White APIs on the other are profound and pervasive. However, the findings also indicate that the higher performing schools are more likely to press their students academically by encouraging them to take advanced courses and helping them to be admissible to college. Teacher experience and education are markedly lower at low performing schools. District-level support may also have substantial impact on students' academic success.

CHAPTER 1: INTRODUCTION

Overview

The achievement gap is widespread and well documented (Bainbridge and Lasley, 2002; Coleman, 1966; Rumberger and Willms, 1992; Singham, 1998). White and Asian students perform better on a variety of academic measures than African American and Latino students. Students who come from middle and upper-income families do better than students who come from low-income homes. Consequently, schools with large student populations of African American, Latino, or socioeconomically disadvantaged (SED) students typically have lower academic results and struggle to meet accountability measures mandated by such legislation as No Child Left Behind (NCLB) (Fusarelli, 2004). School performance is strongly associated with school demographics, but some schools have had greater success in helping their students perform better academically regardless of the cultural diversity or the financial hardships of their student bodies.

This study first gives an overview of the academic achievement in California high schools as measured by state assessments and then examines groups of schools that are having the greatest success with under-represented students comparing them to schools with similar demographics that are less successful. The study attempts to identify non-demographic factors that differentiate higher performing schools from lower performing schools; such factors may have a meaningful impact on improving under-represented student performance. To examine such differences, the study depends on publicly available school performance, demographic, and staffing data. It

also examines trends in responses made by high school principals to a survey about specific practices at their schools.

Background

Studying California high schools is important for several reasons. First, not only does the state of California have the largest student population in the nation, it is also one of the most diverse. According to records kept by the California Department of Education (CDE) nearly 55% of California students are Hispanic or African American and approximately 50% are socioeconomically disadvantaged. Consequently, California schools have a large and challenging task of ensuring a quality education for students who traditionally have lower academic performance than their White, Asian, and more economically secure peers. California's demographics, though on a larger scale than other states, are suggestive of demographic shifts throughout the nation. The size of the state allows a particular research advantage. Its large sample size increases the possibility of identifying generalizable patterns that affect school performance than what might be available in smaller states.

Focusing on high schools is also important. High school is the end of compulsory education in the U.S. It can provide students with options for additional education, but it can also mark the end of students' formal education. Students who are not successful in high school have more barriers to advanced education than students who have been successful. Increasingly, the lack of more advanced education limits career and economic prospects for students. High schools, therefore, can play a

pivotal role in improving—or limiting—the educational and economic futures of its students.

Three converging trends within California's educational system allow for a statewide analysis of the achievement gap and possible insights into ways of lessening it. First, the academic standards movement has matured and stabilized over the past decade in the state (Kirst, 2005). As a result, perhaps for the first time, there is long-term statewide institutional consensus on what students should be learning in various grades. Such stability allows schools the possibility of focusing resources and professional development on specific curricular goals over a prolonged period. Secondly, California's standardized assessments focus on statewide content standards rather than vaguely defined national norms, bringing greater alignment between what is taught and what is assessed than has generally been the case. The tests, then, are a reasonable attempt at measuring what is intended to be taught. Coupled with the assessments is a very public accountability system that places significant pressure on schools to improve academic performance for all students.

One last advantage of studying education in this state is the wealth of data available on California Department of Education (CDE) website. One critical set of data contained on the website is the Academic Performance Index (API), which aggregates the multiple statewide assessments that students take into a single number. Also available are student achievement measures such as SAT and Advanced Placement scores, high school graduation rates, and college admissions course eligibility rates. The CDE website also contains demographic and staffing information on each public school in the state.

With these databases, it is now possible to look at statewide achievement patterns and describe them with consistent measures. The general pattern of achievement gaps found in previous research is, unfortunately, replicated in California high schools. One of the purposes of this research, however, is to provide a quantitative description of the current extent of that achievement gap. More important for this study is the ability to identify schools that rise above the general trend, whose students are having the greatest academic success for their subgroups. These schools' data may provide insight into practices that improve the educational opportunities for minority and economically disadvantaged students.

<div align="center">Theoretical Framework</div>

Most influential to this study is a three point framework described by Jeannie Oakes (1989) that focuses on school context indicators as a way to monitor school performance. Writing a decade before the current California and national accountability systems were in place, she cautions against using student outcomes in the form of standardized tests as the sole means of monitoring schools. She encourages measuring three broad constructs defining school context that can enable effective teaching and learning for all schools, especially those with large populations of under-represented students (Figure 1). Students must have *access to knowledge*, which includes having access to qualified teachers as well as appropriate curricular materials and facilities. Schools must also *press for achievement* for all students. Students must be enrolled in rigorous academic programs that have high performance expectations. Staffs need *professional teaching conditions* that support their ability to teach well, such as a manageable student load and time to plan.

Press for Achievement

**Professional
Teaching Conditions**

Access to Knowledge
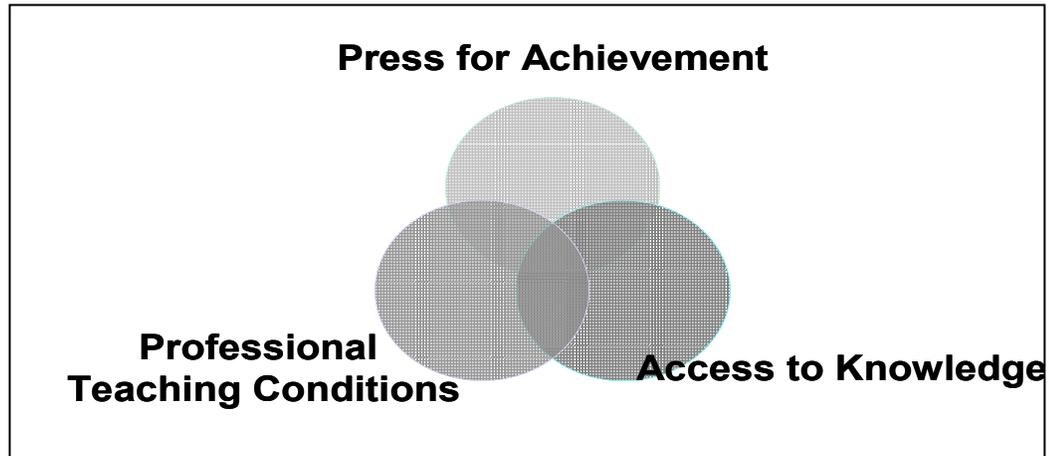
Figure 1. A three point framework suggested by Oakes (1989).

In general, explanations for the existence of the achievement gap usually center on the role of differing cultures between the students and their schools or on the lack of resources and knowledge for disadvantaged students. Theories that emphasize cultural explanations of the achievement gap tend to focus on ways in which society in general and schools in particular can hamper under-represented students and their families from receiving a quality education (Farkas, 2003; Fordham, 1996). Some observe ways in which racism pervades the schooling system and the resulting obstacles to opportunity that are imposed on students of color (Berlak, 2001; English, 2002). Others discuss the mismatches in culture and communication between the schools and students they serve, which perpetuate the achievement gap (Ladson-Billings, 1994; Mehan, Hubbard, & Villanueva, 1994; Uhlenberg & Brown, 2002). Resource based theories focus on material or educational resources that socioeconomically disadvantaged students often lack but are taken for granted for

most students coming from educated, middle-class families. (Anyon 1995, Bainbridge & Lasley, 2002; Phillips, Crouse & Ralph, 1998; Viadero & Johnston, 2000); These two views on the achievement gap are by no means mutually exclusive. Since minority students are also frequently socioeconomically disadvantaged, these explanations of the achievement gap intertwine and must be considered together.

California's API and its version of the federal Adequate Yearly Progress (AYP), the centerpieces of the state's accountability system, rely solely on standardized student assessments to constitute their metrics of school performance. As such, they have focused attention for K-12 educators throughout the state on bridging the academic achievement gap as measured by the state's academic assessments. I believe the schools most successful in narrowing the achievement gap will have focused their resources on addressing Oakes's constructs of access to knowledge, press for achievement, and professional teaching conditions. Through their personnel and instructional practices, they will have created school cultures that value the students they serve and help them see their potential as they lay foundations for their futures.

Research Questions

In this research, I am interested in finding out the general patterns of academic performance of typical California high schools particularly as they relate to under-represented populations. Consistent with other research, California has a substantial achievement gap, but my interest here is in providing a specific, current, quantitative description of it that can serve as a context for the other parts of my dissertation. Secondly, I hope to identify school practices that may have a meaningful effect on

improving under-represented student performance in California high schools. The key questions that have guided my work are:

1. What are the patterns of academic performance in California comprehensive high schools in relation to under-represented populations?

2. Are there high schools with substantial under-represented populations that perform significantly better than schools with similar demographics? What features distinguish these schools from each other that may have a meaningful effect on improving under-represented students' academic performance?

CHAPTER 2: LITERATURE REVIEW

Extent of the Achievement Gap

It is well documented that factors within the family and community are strong predictors of student achievement levels. The two most powerful predictors of student achievement are the student's family and the school's socioeconomic status (Kahlenberg, 2006). For instance, in a state by state analysis of the 1992 Math National Assessment of Educational Progress (NAEP), nearly 90% of differences among states correlate to four socioeconomic variables: parents' education level, poverty, lack of two-parent family, and community type (e.g., disadvantaged urban area) (Robinson, 1997). Analysis of these demographic factors could reliably predict the states' performance on the math NAEP. Race and ethnicity also have a strong relationship to students' academic performance. African American and Hispanic students have lower scores on a variety of academic measures than their White counterparts. For example, according to the NAEP website, on the 2002 NAEP exam in Reading, 40% of White seniors scored proficient or advanced; however, only 20% of Hispanic seniors and 15% of African American seniors scored as well. The gap in math is even more extreme: 20% of White students scored proficient or higher, while only 4% of Hispanic and just 2% of African American seniors score as well.

The achievement gap is an important concern for California schools. According to data available on the California Department of Education's website for the 2004-05 school year, over 46% of California's K-12 student population was Hispanic and 8% was African American. Nearly half of California's students qualify for Free/Reduced Lunch, a common school measure of family poverty. In a state with

as much ethnic diversity and economic disparity as California, the academic patterns suggested by NAEP are troubling, particularly for the long-term educational opportunities such as high school graduation and matriculation to college. In California for the academic year 2004-05, nearly one out of five Latino students and one out of four African American students dropped out of high school. These dropout rates are two to three times the 8% rate that White students experience.

When combining dropout rates with entrance requirements for California's public universities, only about 18% of Hispanic and African American ninth graders are likely to complete college entrance requirements in high school (Oakes, Mendoza, & Silver, 2004). Meanwhile approximately twice the percentage (37%) of White ninth graders and three times the percentage (53%) of Asian ninth graders are likely to meet college entrance requirements during high school. The persistence and widespread nature of the achievement gap threatens the chances for academic success for over half of the students in the state of California. Of course the concern is not limited to the state of California but to the rest of the United States as well.

Theories Explaining the Achievement Gap

Numerous theories attempt to explain the achievement gap. Through the first half of the 20th century, one common view held that intelligence, and therefore school success, was largely inherited[1]. These biologically based theories gave way to environmentally based theories, seeing environmental and social deficits from the home and community as a new potential way to explain the cause of the achievement gap (Erickson, 1987). Although still voiced at times by practitioners, the deficit model

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[1] See R. J. Herrnstein and C. Murray's *The Bell Curve* (1994) for a more recent version of this theory.

has largely been replaced by a more nuanced view about the influence of resources on education, and on the cultural discontinuity that minority children typically experience in schools.

There are a variety of ways that current theories explaining the achievement gap can be categorized. I am choosing to organize these theories around their focus on resources (both material and educational) or on cultural interactions because the achievement gap normally discusses the patterns of lowered academic achievement for socioeconomically disadvantaged or minority students. Categorizing in this way, however, is not to set up a false dichotomy over whether it is lack resources or culture that "causes" the achievement gap. Resources influence culture; culture influences resources or at least how resources are attained and used. Accordingly, the different theories explaining the achievement gap often overlap each other.

Ethnicity and socioeconomic status themselves are strongly linked in U.S. society. An overwhelming number of Hispanic and African American students come from poor families. According to College Board data from 1990, Hispanic students are twice as likely to come from low-income families as White or Asian students, and African American students are three times as likely (Viadero and Johnston, 2000). The *de facto* segregation of neighborhoods both by income and by ethnicity (Guthrie & Springer, 2004; Rumberger & Willms, 1992) further links socioeconomic status with ethnicity. Additionally, the impact of poverty on education extends beyond just the children who come from poor families. Students who attend schools where 25% or more of the students live in poverty have lower academic achievement than students who attend schools in more affluent communities regardless of their own family's

income (Viadero & Johnston, 2000). Considering both socioeconomic status and ethnicity are essential when discussing the achievement gap.

Resource Based Explanations

This section focuses on theories that emphasize financial, material, and educational resources of students' families and communities and how these resources (or more typically, *lack* of resources) affect student learning. For instance, focusing on resources in the home, Phillips, Brooks-Gunn, Duncan, Lebanov, and Crane (1998) summarize research that describes the relationship of family characteristics on African American student achievement. Parental education (and for that matter, grandparents' education) is significantly correlated to their children's academic achievement. The implication is that the more educated the parent, the more educational support the child can receive at home. Even larger in influence than the difference in education is the difference in family income. These socioeconomic differences may explain approximately one-third of the test score differences. Phillips, et al. (1998) theorize that test scores may be more strongly related to correlates of family income such as attitudes and behaviors than to the income itself. Still, they conclude with the thought that "eliminating environmental differences between black and white families could go a long way toward eliminating the test score gap" (p. 140).

The conditions of the overall community also affect student learning. Anyon (1995) describes the bleak condition of schools within an urban district whose facilities are dilapidated and governance dysfunctional, and whose student performance is declining. She argues that the conditions in the local community—high crime, high poverty, low quality of housing and health care—have direct bearing on

school quality and can make it impossible for improvement without changes in the larger community.

Early literacy skills can be viewed as a type of educational resource that students carry with them throughout their schooling. The differences in early literacy can be substantial. For example, socioeconomically disadvantaged African American students are approximately one year behind their white middle class peers in reading in first grade (Bainbridge & Lasley, 2002; Farkas, 2003; Phillips, Crouse & Ralph, 1998). Beginning school with lower reading skills can present challenges throughout students' schooling. Indeed, these literacy gaps tend to compound over time. Phillips, Crouse, et al. (1998) consider that low literacy may affect the confidence that children have in themselves or that schools provide a different quality of education for students who begin school with low performance. Regardless of the mechanism, their research suggests as much as half of the difference in African American and White reading scores in high school can be attributable to the gap in first grade reading scores.

Perhaps a moment of reflection about explanations that emphasize material and educational resources would be appropriate here. Read in a particular manner, one might come to the conclusion that the source of the achievement gap lies almost entirely outside of schools, either within the family or community, or even within the students themselves. Such a view minimizes the impact that schools can have on raising academic achievement for under-represented students. Such a reading seems to start from a premise that the background, experience, and knowledge that White, middle-class students typically bring to school is somehow normative, and students who deviate from that norm are somehow deficient and will inevitably trail

academically. Such an outlook when held by school personnel can lead to actions that intensify the inequities, but that shall be discussed shortly in the section about cultural explanations. To finish the discussion about resource oriented theories, I need to shift the attention from resources outside of schools to those inside of schools. The gap in school resources often follows socioeconomic lines. The educational community can exacerbate the achievement gap in how it funds schools on behalf of under-represented students. Schools that serve large numbers of low income families often have lower levels of school funding and fewer resources (Bainbridge & Lasley, 2002; Viadero & Johnston, 2000).

Students who come from socioeconomically disadvantaged homes do not leave the challenges of poverty as they enter the school house door. Schools that serve large numbers of socioeconomically disadvantaged students frequently lack such academic essentials as sufficient, current textbooks and instructional materials. Oakes and Saunders (2004) in an analysis of resources in California schools summarize a number of studies about the impact of textbooks and other school materials on student learning. In both U.S. and international schools, textbook use is significantly related to student learning. A likely reason for the importance of textbooks is that teachers can more readily assign meaningful homework to students who have textbooks; homework completion is strongly linked to student learning. If students lack textbooks to take home, then valuable classroom time must be taken to read what otherwise be read at home. Textbooks are especially important in schools where many of the teachers are inexperienced.

Citing a Peter Harris Research Group study in 2002, Oakes and Saunders (2004) state that nearly a third of California teachers lack enough textbooks for their students to be able to take home a copy, and more than a tenth of teachers do not even have a complete class set of their textbook. The problem is even worse at schools with large SED populations, where 43% of classes lack enough textbooks to send home with students. In other words, the students who would most benefit from having access to textbooks are the least likely to have regular access to them. Instructional materials are also important for student learning. Many of California's curricular content standards require access to computers and the internet as well as more traditional instructional supplies like reference books and periodicals. Unfortunately, the general patterns with textbooks are repeated with instructional materials.

Even more damaging for the education of children in poorer communities is the lack of qualified teachers (Education Trust-West, 2005). The difference in resources between schools can be substantial, especially in terms of teacher salaries, which represent teacher experience and education. "Throughout the United States, it is a documented fact that because of inequitable funding patterns, predominantly Black, inner-city schools consistently employ many more inexperienced teachers than do integrated suburban schools. Due to a lack of resources and support, urban schools also hire more teachers without full credentials" (Uhlenberg & Brown, 2002, p. 502). The differences in teacher salaries within a district suggest that less experienced teachers often start in a district's poorer and largely minority schools and gradually migrate to wealthier schools with fewer minorities. As a result, the students who could

most benefit from experienced and better educated teachers are least likely to be taught by them. (Education Trust-West, 2005).

Although the disparity of resources in families, the communities, and the schools certainly play a significant role in the disparate academic results, focusing only on resources provides an incomplete explanation of the academic achievement gap. For example, even when African American and White children have the same socioeconomic status, the same baseline achievement scores, and attend the same schools, African American children make smaller gains in reading, math, and vocabulary each year (Farkas, 2003). Although the differences are small in any given year, they compound over multiple years of schooling creating large differences by high school age.

Oakes's (1989) three point framework corroborates the importance of paying attention to educational resources as an important indicator of school performance. As discussed by these resource based theories, teacher qualifications and access to materials are important components of what Oakes calls *access to knowledge* while teacher salaries and teaching conditions are important components of *professional teaching conditions*. The third component in her model, *press for achievement* is evident in the cultural based explanations described below.

Culture Based Explanations

Many researchers focus on cultural explanations for the achievement gap. Such explanations often describe practices both in the larger community and within schools that impede the education of under-represented students. In general, culture based explanations attempt to understand the achievement gap as a mismatch of different

cultural practices, values, and skills. Schools in the U.S. typically have a structure and philosophy that are largely compatible with White, middle class practices and values. Such a system can often be at odds with those who are from a different culture.

Cultural differences can become barriers when they influence who receives services within the school. Although stated policies and procedures apply to all students and their families, they are implemented by staff members who may not apply those rules fairly. Bourdieu (1986) describes social capital, by which persons through their membership with a group gain "credit" that can in essence be traded for social favors. Applied to schooling, some students may receive benefits of the exchange of social capital because family members are perceived to belong to the same group as school officials by virtue of profession, education, religion, background, or some other network. The converse can also apply. Students perceived as not belonging to the same group as school officials may be denied certain benefits within a school, or at the least not granted the same resources as more privileged students receive. Many qualities can define group membership, but an obvious group marker is ethnicity. Bourdieu's construct of social capital may be one explanation for why students receive differential treatment on school matters as diverse as teacher selection, disciplinary actions, and school guidance.

Ethnicity is one marker that can lead to differential treatment; however, cultural practices such as linguistic patterns have also been theorized as cultural separators. Erickson (1987) observes how verbal and non-verbal linguistic conventions can be misinterpreted by those of another culture. For instance, not looking at others while they are speaking can be respectful for many African

American communities, but is generally seen as a non-verbal cue for boredom, disagreement, or even anger among Whites. Such differences can lead to significant misunderstandings. As Erickson (1987) describes it, what could be just a "boundary," a small line of difference, becomes a "border" that genuinely separates people. Heath (1983) describes discourse practices of African American and of White families in the Carolinas. Her portrayal demonstrates that both sets of family practices appropriately build verbal and literacy skills, but the White practices are more congruent to school expectations, causing some challenges for the African American students. Many of these differences are not fundamental to issues of literacy, but more indicative of cultural norms. For instance, the differences in the rules for "turn taking" in conversation can produce conflict. Differences in linguistic patterns, then, can lead to misunderstandings and barriers that interfere with students' access to school.

Social behavior can be another distinguishing characteristic of groups. Bowles and Gintis (2001) through quantitative meta-analysis of several decades' research conclude that schooling's effect on future social class and income may have more to do with attitudes and behaviors learned in school than with the learning of the formal curriculum. As such, they contend that the role of schools as social transmitters is pivotal. They go on to theorize that students coming from families whose attitudes and behaviors differ from those held by the school will have more difficulty with school. Such differences may be benign in and of themselves, differences like activity levels or interactional styles. Some students may choose to adopt the school sanctioned behaviors and attitudes, but those who do not can be labeled negatively and thus be excluded from school benefits.

One implication of Bowles and Gintis's (2001) ideas on schools is that to close

the economic gap for minorities, schools should assist their students to adopt White,

middle class behaviors and attitudes. Expecting students to adopt other cultural norms

is problematic. To some extent, each of the other cultural theorists discussed so far

implies a tension between encouraging minority students to adopt White, middle class

values and schools needing to be more sensitive to the cultural norms of their students.

To varying degrees, each of these models acknowledges privilege but tend not to

address the impact of *not* being privileged. Several theories attempt to look at cultural

discontinuities from the perspective of the minority student.

Minorities who have had a significant presence in the U.S. but who

traditionally have remained poor can feel that education holds little promise for them

since discriminatory hiring practices outside of school will impose obstacles

preventing them from prestigious, higher-paying careers (Fordham, 1996; Ogbu &

Simons, 1998). The frequent inferiority of funding, facilities, materials, and teacher

quality in low income (and typically minority) community schools only reinforces the

students' awareness of discrimination. In reaction to it, students from under-

represented ethnic groups often develop their identities at least in part in opposition to

the dominant culture. For students, that can mean resisting the academic expectations

of schools in order to avoid "acting white." Students' opportunities for learning are

limited not only by restricting access to quality instruction but by increasing student

resistance to school in general.

These discriminatory practices can also include lowered expectations for

minorities (Ferguson, 2003; Uhlenberg & Brown, 2002), which can become

internalized and perpetuate low achievement for minority students. Steele and Aronson (1995) describe what they term "stereotype threat." Living with the possibility of being treated stereotypically or of acting in a way that could confirm others' negative stereotypes can affect people's lives and self-perceptions, and ultimately lower their performance. It seems likely that the more a school and its larger community feed these stereotypes, the more such stereotypes can limit the academic performance of its students.

Garcia Coll, et al (1996) describe a complex model of how minority children develop. They reason that, unlike White children in U.S. society, minority children confront issues of their race and social class interacting with racial prejudice and discrimination as well as residential, economic, and social segregation. Furthermore, the various environments in which they live can promote or inhibit healthy developmental competencies. Their families and cultures help to shape how they will react to racial or economic challenges. Within this complex system that shapes children's development, school has a role to play in that it is one of the main environments in which students live. Schools, therefore, can either promote or inhibit minority children's cognitive, social, linguistic, and emotional competencies.

How might schools create an environment that promotes developmental competency? One possible lens for achieving that comes through the work of Fred Erickson. Erickson (1987) critiques sociolinguistic theories and the labor market theory of Ogbu, and ultimately suggests a synthesis of these two views. He proposes that linguistic variations that serve as borders between cultures can be the result of the resistance implicit in Ogbu's theory. As the perceived need to resist increases, the

need for linguistic barriers[2] increases as well, which can further increase the need to resist.

Although the communication challenges suggested by sociolinguists and the resistance suggested by Ogbu may indeed complicate formal education for under-represented students, Erickson proposes a more fundamental conception of what may lie at the heart of the academic achievement gap. Drawing on Vygotskian learning theory, he describes how teachers can draw students from their "zone of proximal development" and develop greater and greater competence. In order to accomplish that, students and teachers must be able to trust each other because the psychological risk of appearing incompetent both for the student and for the teacher if the desired learning did not take place is great. Not learning something can challenge the student's sense of competency as well as challenge the teacher's sense of competency about teaching. This sense of trust is developed over long time spans but is "continually negotiated within the intimate circumstances and short time scale of everyday encounters between individual teachers, students, and parents" (p. 345).

These various theories have important implications for schools. On one hand, schools must consider the physical and educational resources that are readily available and how they are distributed for *all* their students. They also must consider how to minimize cultural barriers. To bridge achievement gap, schools must present an environment in which under-represented students can develop and maintain a viable, plausible identity to the one supported by the community. They must find ways of

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[2] Although Erickson limits his comments to linguistics, it seems reasonable to believe that his argument would apply to the behavioral and attitudinal differences discussed by Bowles and Gintis.

building a school culture that successfully opposes the attitudes that say low income and minority children either cannot or should not achieve academically. Simply stated, schools must be wise in what they provide their students as well as the manner in which they provide it.

Jeannie Oakes's (1989) framework of academic push, access to knowledge, and professional teaching conditions provides a useful structure to discuss schools' effectiveness at bridging the achievement gap. Her notion of providing access to knowledge is related to material and educational resources. Schools' primary resource is knowledge, so making sure that under-represented students have genuine access to it is essential. Academic push suggests an alternative way of seeing oneself. When schools support students with rigorous academics, students can see themselves as academically successful. It builds a competing image to how low income and minority students are frequently viewed. Professional teaching conditions are necessary so that teachers can be effective transmitters of the school culture. Teachers need ongoing support in providing academic press and access to knowledge.

How Schools Can Widen the Achievement Gap

A number of researchers argue that schools have little influence in overcoming the difference in achievement. For instance, English (2002) summarizes the research of Robinson and Brandon (1994) and Wilkins (2000) by saying, "School-controlled variables are not very powerful in improving test performance because the statistically significant variables are demographic rather than educational" (p. 300). Regardless, schools are held accountable for ensuring that all their students receive a good education. School accountability legislation such as the federal No Child Left Behind

(NCLB) are attempts at legislating equity. One set of criticisms about NCLB focuses on its placing responsibility on schools for social conditions over which schools can exert little influence (Harris, 2006; Hunter & Bartee, 2003).

Such a line of reasoning might suggest that schools should not be held accountable for the achievement gap. Unfortunately, schools can and do *increase* inequity. This is not said as a condemnation of schools but rather an acknowledgment of how difficult it is for schools to counter the forces that cause the inequities in student achievement. Although schools cannot solve all of society's ills, I would hope that they not compound them. Observing how schools increase the achievement gap can give insight into ways of improving the quality of education for under-represented students.

For instance, Mehan (1997) summarizes research that shows ways in which schools' policies and practices actually encourage students to dropout. Citing Fine's 1991 study of Comprehensive High School in New York City, Mehan observes that policies and the funding structure made it more expedient for students to drop out than to remain in school. Consequently, school counselors tended to focus more on assisting students with following the procedures of withdrawing from school than on assisting students with their plans upon leaving school or on helping them to be successful in school. School practices can widen the achievement gap for students who remain in school as well. Citing Gamoran (1987), low track classes normally focus on remediation of basic life skills and the "correct" answer rather than on becoming competent thinkers that is the norm in advanced tracks. Even students who are "successful" with such a curriculum will have a limited education overall. Both of

these examples illustrate how systemic low expectations for students ultimately compound the achievement gap.

Teachers' attitudes about students can have significant influence on student achievement. When teachers view disadvantaged or minority students as being less capable learners, their lowered expectations can limit student achievement. For instance, Diamond, Randolph, and Spillane (2004) found that in some elementary schools with high percentages of economically disadvantaged and largely African American populations, teachers had lowered expectations for their students, and often viewed difficulties in students' lives as excusing students' poor achievement. The level of educational expectation at these schools was correspondingly low. This pattern of lowered expectations is unfortunately not unusual. Ferguson (1998) points out that this difference in expectation may not be based on racial bias *per se*, but rather on a variety of factors including previous student performance and classroom behavior. Still, a cycle of increasingly lowered expectations can result leaving students further and further behind academically.

Uhlenberg and Brown (2002) cite research that demonstrates the impact that teacher perceptions of students have on African American student achievement. For instance, in a survey of eighth and ninth grade students, Casteel (1997) found that more than twice as many African American as White students primarily sought teacher approval, suggesting that many African American students are influenced by their teachers' opinions of them. However, the combination of students seeking approval from teachers who have low academic expectations of them and the low

skills with which many African American students enter school sets the stage for reduced academic performance.

Teacher credentials and teacher education are two measures of teacher quality that correlate strongly with student achievement, especially when taken together (Darling-Hammond, 2000; Uhlenberg & Brown, 2002). In California during 2000, 42,000 classrooms (14%), had teachers who had not completed requirements for teacher credentials (Zeichner, 2003). Most of these uncredentialed teachers are concentrated in low income, predominantly minority communities. Approximately two-thirds of California English Learners have uncredentialed teachers. It is a sad commentary that often "the very youngsters who are most dependent on their teachers for content knowledge—are systematically taught by teachers with the least content knowledge" (Haycock, Jerald, & Huang, 2001, p. 62).It is clear that students who lack such essentials as appropriate textbooks and qualified teachers are at a huge disadvantage.

How Schools Can Minimize the Achievement Gap

The patterns just outlined certainly suggest how schools can widen the achievement gap. However, there are also instances in which schools have narrowed the gap. In the study by Diamond, et al (2004), not all schools made excuses to justify low academic expectations for their students. Some schools instead took responsibility in helping disadvantaged students overcome obstacles because of a deep-rooted belief in students' abilities to learn rather than excusing students' difficulties as unavoidable due to family challenges or previous academic deficits. Ferguson (1998) comments that "Simply cajoling teachers to raise their expectations for black children [or any

group of children]—using phrases such as 'All children can learn'—is probably a waste of time" (p. 312). Teachers, he claims, tend to continue acting in ways that are consistent with their previous experiences. If instead, teachers teach in ways that are more likely to improve under-represented students' achievement, they "can have 'seeing is believing' experiences that challenge their prior biases" (p. 312).

Singham (1998) summarizes several studies that emphasize the importance of making the curriculum challenging and building higher level thinking skills. This runs contrary to most remedial instruction methods, which tend to focus on simplifying content and context. He notes the success of Xavier College, a predominantly African American university, whose curriculum emphasizes higher level thinking skills. He also notes a teaching experiment by Uri Treisman in the 1970s in which he put his students into small groups and had them solve very challenging problems. What he noticed was that the African American students, who had traditionally been much less successful with his course, improved their grades by one letter on average. Singham points out that not only did the shared learning of small groups help students to succeed, but also "the explicitly challenging nature of the problems posed to the students meant that there was no stigma attached to failing to solve them. Failure was simply due to the difficulty of the problems, not to membership in an ethnic group."

Both of these examples look at post-secondary education, but there is evidence that increasing the rigor of expectations for secondary students while providing them with meaningful support helps high school age minority and low-income students be more successful. For example, the QUASAR project (Silver & Stein, 1996) minimizes rote learning and drill methods of mathematics instruction in favor of developing

students' mathematical reasoning. Students are routinely asked to think about and solve complex problems. Students who have participated in QUASAR were nearly four times more likely to enroll and be successful in Algebra 1 in ninth grade than demographically similar students who had not participated.

A broader study that examines a statewide improvement program confirms the value of higher academic expectations for students. Since 2000, California has attempted to help low performing schools with its Immediate Intervention/ Underperforming Schools Program (II/USP) (Chrisman, 2004; Mintrop, 2004). Despite substantial technical and financial assistance, only one in five of the 430 participating schools in the first cohort improved their test scores for two consecutive years, the intended goal in order to "exit" from II/USP. One of Chrisman's key findings in her analysis of the successful schools was the importance of creating a school atmosphere in which staff held high expectations for all their students.

Since one of the explanations for the achievement gap centers on the disconnection that many minority students feel from the larger White society in general and from the typical school culture specifically, schools need to be culturally sensitive. A number of studies focus on using culturally appropriate pedagogy or programs to engage students (Knight et al., 2004; Ladson-Billings, 1994; Mehan et al., 1994; Moll et al., 1992).

Ladson-Billings (1994), writing about teaching practices that help African American students, says that the "primary aim of culturally relevant teaching is to assist in the development of a 'relevant black personality' that allows African American students to choose academic excellence yet still identify with African and

African American culture" (p. 17). Hallmarks of such teaching include being passionate about learning and viewing learning as occurring in the interaction between teachers and students, not being passed statically from teacher to student. Such teaching also values the students' community and students' roles in those communities. Teachers are available to students outside of the classroom as well, striving to build multi-faceted relationships with their students.

Moll, Amanti, Neff, and Gonzalez (1992) describe the importance of respecting the wealth of knowledge that students and their families have rather than focusing on apparent deficits. Their research within a Mexican American community in Tucson allowed teacher-researchers to observe how families used their "funds of knowledge" in household settings and the intertwining and reciprocal roles that family members had with each other. Learning within the family was shared and had practical purpose. The teacher-researchers were able to extrapolate from these family practices to inform their instructional methods thereby making classroom learning richer and more culturally relevant.

Other schools have found means of encouraging minority students to attend college by drawing on family or community narratives or "counter-stories" of achievement (Knight et al., 2004). They are called counter-stories because they run counter to the typical, official school stories that privilege a particular view of preparing students for college and "narrowly define how families should participate in their youth's college-going processes" (p. 100). Rather than ignoring or even de-valuing students' families, some schools have actively sought counter-stories that tell of family and community members' goals, successes, and achievements. What is

critical here is that the schools engage students' home cultures rather than attempting to work in opposition to them, and simultaneously press students to achieve academically.

Each of these three examples suggest solutions in which schools deliberately focus on providing students with the opportunity to use their own and their families' experiences and backgrounds in order to become successful with what school might "normally" expect of them. In essence, they are bringing the local or even the family culture into the school. Other research has examined school programs like AVID that help under-represented students by teaching traditional school success strategies and forming a school culture that expects students to apply and succeed in college. Mehan, et al. (1994) examined AVID programs in San Diego County in which students could "accommodate without assimilation"; that is, under-represented students could belong to a community within the school where both academic achievement and their cultural identity coherently co-exist. AVID students were actively engaged with each other and with their teachers. With programs like AVID, minority students can belong to a community that sees them as academically capable and successful and provides support for countering the larger community's frequently lowered expectations for them.

A number of studies have looked specifically at schools with high populations of under-represented students that nevertheless have high levels of academic achievement. One such example is an Education Trust study (Barth et al., 1999) prior to the passage of No Child Left Behind. The researchers surveyed elementary and secondary schools identified by state school chiefs as both high performing and high

poverty. Inclusion criteria in this study are arguably arbitrary, but recurring patterns among the high performing schools emerged. These schools used state standards to shape curriculum, guide instruction, and to a lesser extent evaluate teachers. They devoted significant professional development funds to improving instructional practices and implemented strategies for measuring student achievement and provided support for students who needed it. Additionally, districts or states implemented accountability systems that had consequences for school staff. The research supports the common sense notion that focusing school resources on student achievement can indeed make a difference for economically disadvantaged students.

A statewide study analyzing key differences between high and low performing California elementary schools with large populations of under-represented students has recently been completed by Ed Source, UC Berkeley, Stanford University, and American Institutes for Research (Kirst, 2005). Using data available from the California Department of Education's websites, researchers examined elementary schools that were in the 25th-35th percentile band on California's School Characteristics Index indicating that they served large numbers of socioeconomically disadvantaged students. They used API as a means to distinguish between high and low performing schools. Employing extensive principal and teacher surveys they explored the differences in instructional practices between high and low performing schools. In the study, they found that high performing schools shared several features. Specifically, high performing schools had a multi-faceted focus on student achievement, curriculum aligned to standards, articulated use of student achievement

data, and available educational resources including credentialed teachers and approved textbooks.[3]

Current corresponding large scale research for high schools is less developed. Ed Source, for example, does not have an equivalent study for high schools, nor is it currently planning such a study according to Michael Kirst (personal communication, April 9, 2006). The Education Trust has recently published a study of high schools that break the achievement gap trend (Robinson et al., 2005). They focused on only four high achieving high schools nationwide (three in North Carolina and one from California). Although the study had a small sample size, its findings were consistent with the elementary school study in California. They found that high schools that countered the achievement gap more effectively had a consistent schoolwide culture of high academic expectations, proactive support to help students stay in grade level and college preparatory courses, and focus of time and teacher talent on students' academic needs.

Although such a study provides valuable information about high schools, one wonders what could be happening in high schools more generally. After all, a selection of only four high schools nationwide seems rather limited, and their selection criteria were not clearly defined. It also is not clear if low-performing schools would have different practices. My study addresses those concerns. By studying high schools

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[3] This study is very similar to the research I propose except that it was able to survey more extensively because of its resources than I will be capable of. I also will be selecting schools differently; the California's School Characteristics Index has a reputation in the field for grouping remarkably dissimilar schools together (Statewide Evaluators' Meeting, Anaheim, May 25, 2006). Lastly, and perhaps most importantly, my study will look at high schools and include preparation for college as a component.

in a single state, selection and comparisons can be made using similar criteria. By first

identifying and then comparing California high schools of similar demographics but

with different achievement outcomes, research in this proposal will attempt to identify

factors within a school's control that can help improve under-represented students'

academic success. It will attempt to find factors that would help high schools to

decrease the inequity that currently exists.

CHAPTER 3: METHODOLOGY

Introduction

In the review of literature for my dissertation research project, I have summarized research that details what is commonly referred to as the academic achievement gap, focusing on theories that attempt to explain its existence, and strategies that help under-represented students perform better academically. A relatively small portion of the existing research looks at high schools. The focus of this research is to examine the achievement gap in high schools on a statewide basis. It quantitatively describes the pattern of academic performance particularly as it relates to student groups that are traditionally under-represented in higher education. It also looks at the schools that have large under-represented populations but substantially different academic performance patterns. Most importantly, it attempts to identify factors used in California high schools that have a meaningful effect on improving under-represented student performance.

The research depends on publicly available statewide data that the California Department of Education (CDE) collects on student achievement, school demographics, and staffing. This readily available data can present a valuable overview of the current state of California high schools relative to their ethnic and socioeconomic compositions. Additionally, the study examines responses from a researcher designed survey given to principals at selected high schools.

Positionality

As is true for all researchers, my own history shapes and colors my research. I was a high school English and math teacher for twenty years. As such, I always felt

that high schools could provide wonderful opportunities for young people as they stepped into adulthood. It made me uncomfortable at times seeing that Hispanic students—my school's largest under-represented group—were rarely in my advanced classes. Some years, my classes would have more Hispanic students than usual, and I would find out that AVID or a counselor was actively trying to increase participation in advanced courses.

In the middle of my doctoral studies, I began work as director of assessment for a mid-sized district with a large under-represented student population. As an assessment director, much of my work centers on state assessments and their implications for state and federal accountability measures. For my study, I chose to examine student achievement data because they are the tools I routinely use. They also provide a language that is currently powerful within many districts to discuss school improvement. Student achievement data has its limits, however, so I also chose to look at staff characteristics, since that data is routinely collected at a state level. Unfortunately, other data that looks at student access to knowledge or the school culture are either not collected or, when they are collected (e.g., textbook availability), the data are difficult to aggregate in ways that would be meaningful for this study.

Studying a large group of high schools throughout the state provides a sense of what can currently be achieved as well what is not being examined. In many ways, my district is very typical of the state as a whole in terms of demographics and performance. I hope not only to add in some small way to the research of my field, but by doing this research to hone my understanding and abilities about what helps

students succeed academically so that I can influence such changes in my district on behalf of the children it serves.

Research Design

Data collection for this research consisted of three main stages. The first stage collected data from the 2005 Base API data file available on the CDE website and winnowed the sample down to 722 typical comprehensive high schools. Analyzing the descriptive statistics of these data provided an overview of academic performance in relation to ethnic and socioeconomic composition of high schools throughout the state. It also allowed identification of approximately 100 schools that were outliers in relation to subgroup composition and student performance.

Stage two collected more extensive quantitative data from CDE data files on student performance and staff characteristics for these outlier schools whose targeted subgroups performed either significantly better or worse than state norms. Analysis at this stage focused on comparing the high and low performing schools statistically and looking for significant differences.

The last stage surveyed the high school principals at a subset of schools that were identified in stage two. Surveys for stage three had both quantitative and open-ended responses. I tallied the quantitative survey responses and found average responses for the high and low performing groups. The surveys were also examined holistically for general categories of responses. I examined the similarities and differences between the high and low performing groups in the categories that emerged.

Measures

Academic Performance Index (API)

The initial source of data for this study comes from the data used in California's accountability system. The most visible aspect of the accountability system is the Academic Performance Index (API). The API was developed in order to show schools' academic growth from year to year as well as a means of comparing schools' academic performance. The API is calculated for each public school in California by applying a complex formula that weights student performance on a variety of statewide standardized assessments. APIs range from 200 to 1000. For high schools, the majority of the API is based on California Standards Tests (CSTs) for grades nine through eleven.[4] The most weight is given to grade level tests in English and end of course tests in Math, but there are also History tests in tenth and eleventh grades, and end of course tests in Science. API also incorporates scores from the California High School Exit Exam (CAHSEE), which all tenth graders take as well as eleventh and twelfth graders who have not previously passed the exam. The CAHSEE assesses English and math.

Some could argue that the primarily multiple choice tests and the APIs that derive from them are limited in the depth of learning that they measure. However, they provide several advantages as a research measure. First, they are a consistent measure of California's academic standards. All schools statewide use the same assessments to measure student progress on the same set of academic standards. Second, most schools

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[4] The CSTs are based on the California Content Standards and are constructed to be a criterion-referenced exam .

place significance on these results. They attempt to improve their students'
performance on these high stakes tests both through their day-to-day instruction as
well as in the tests' actual administration. It is not clear that other assessments (like the
NAEP) are treated as seriously by schools. Consequently, the results reflect what is a
"best effort" on the part of the high schools. Lastly, API draws on student performance
in multiple subject areas and uses a variety of tests, so it represents a school's overall
academic performance rather than a performance in a single subject like reading or
math.

Not only do entire schools earn API scores, demographic subgroups that
number at least 100 or comprise at least 15% of a school's overall population also
receive APIs. Just like the school APIs, the subgroup APIs can serve as a general
indicator of academic performance for each subgroup. As such, they can provide an
indication of how well different populations of a school perform academically.

The API data also includes the population density of subgroups. Population
density is the percentage of a school that is comprised of a specific subgroup. It is
calculated by dividing the number of testers within a subgroup by the total number of
testers. These subgroup percentages provide the measure used in this research for
describing schools' demographics.

Other Academic Measures

In addition to the accountability measures, the CDE website provides
ethnically disaggregated information about graduation rates at each high school.
California uses the National Center for Education Statistics (NCES) model of
calculating one- and four-year dropout rates. The CDE website also records by

ethnicity how many students at each school meet course eligibility requirements to enter California's public universities. This is one way of measuring how well high schools help prepare students to enter college. Other data (though not ethnically disaggregated) that pertain to college readiness include participation rates for the Scholastic Achievement Test (SAT) and Advanced Placement (AP) exams. Additionally, the data file includes each school's average score SAT score, and the percentage of students who score at least a three on Advanced Placement exams.

Staff Characteristics

The CDE databases also contain information about staff. The CDE reports the percentage of teachers at each school with various types of credentials (e.g., full credential, emergency credential, intern) and education levels (e.g., Bachelors, Masters). The CDE also reports the numbers of teachers, pupil personnel, and administrators at each school. Dividing the number of students by these staff counts creates student to staff ratios.

Sampling

Identifying the Typical Comprehensive High School

Each of the three stages of the research design added an additional, cumulative sampling method. Stage one's sampling method identified typical California comprehensive high schools with student enrollments that were large enough to allow for meaningful statistical analysis. By "typical," I mean schools that primarily enroll students from their local communities without screening them on the basis of their abilities or needs. For example, a magnet school for the performing arts that requires auditions or portfolios for admissions would not meet my criteria. By "comprehensive

high school," I mean schools for ninth through twelfth grades that offer academic programs that attempt to meet a wide range of students' learning needs rather than a school that has a narrowly defined targeted instructional goal. By way of example, schools whose programs focused exclusively on preparing students for college and provided no vocational training opportunities would not be comprehensive. Some of these distinctions are not always clear cut in actuality, as will be discussed shortly.

To create this sample, I collected API data on comprehensive high schools throughout California using the 2005 Base API data file available on the CDE website. This data file includes every public school in the state, including over 2000 high schools. Many of these schools did not meet my criteria as typical comprehensive high schools so were excluded. The process of excluding schools began with removing 1050 small schools with fewer than 500 tested students since a fluctuation in a small handful of student scores or staff characteristics at such small schools could produce seemingly large differences. A secondary benefit emerged from removing these smaller schools from my sample. Based on school names, the majority of these schools were not comprehensive high schools but continuation or alternative schools, schools for students with disabilities, or magnet or charter schools. Two schools were also eliminated because fewer than 95% of their eligible students participated in state tests.

Next, I eliminated charter schools and, in general, other schools (such as magnet schools) that families had to deliberately choose in order for their children to attend. According to school websites, a number of these schools had more rigorous graduation requirements or emphasized accelerated courses that would in essence

discourage low achieving students from applying. The element of choice could skew

student populations—and therefore student achievement—making it difficult to see

whether the difference in performance was a result of the school's effectiveness or of

the school's selective nature and potentially more involved family population. I used

school and district websites and School Accountability Report Cards (SARC) to

determine if high schools had selection criteria or were magnets. Undoubtedly, I did

not screen every school in California to the same degree. Schools that attracted my

attention for this additional screening tended to have names that included "academy"

or "magnet" in them. Additionally, I looked at websites of schools that had APIs over

825, and found half a dozen that were magnets or selective. Some schools were

purposely selective in their enrollments. For instance, a gifted magnet school in

Orange County selects only a few students from each of the district's middle schools

based upon grades and test scores. [5]

The strategy of eliminating magnet and other schools of choice from my

research sample had to be modified somewhat in several of the state's largest districts

that offer an extensive variety of magnet schools and school choices. For instance,

Oakland, San Francisco, and Los Angeles offer so many choices for high schools that

most students go through an application process to enter high school. In these districts

that emphasize choice, I deleted schools that seemed overly selective in their mission

(e.g., held different graduation requirements in math/science, or offered no EL or

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[5] Most of these academically enriched magnet schools not surprisingly had dramatically higher APIs than their "regular" counterparts. Although it was not the purpose of this study, I found myself wondering about the effect of drawing off the most academically able students into specialty schools on the district's other schools. Did students at the remaining schools have similar academic opportunities for enriched study? Were these students given similar opportunities and guidance for post-high school preparation?

remedial classes despite the need for such classes in other nearby schools). In general, I excluded schools that seem to discourage "average" students from applying or that reject large numbers of applicants but included magnets that seem fairly non-selective and offered a broad academic program.

For the first stage of research, my intent was to find schools that were fairly typical comprehensive high schools in terms of student enrollment that did not specifically attempt to attract only the top achieving academic students. After excluding schools for size, testing participation, and selectivity, 722 high schools remained in my sample of California comprehensive high schools representing nearly 75% of the public high school population in the state.

Identifying Outliers

Stage two required identification of high and low performing schools with large concentrations of African American, Hispanic, and/or SED students. The large sample of comprehensive high schools was examined for distribution patterns of school wide API, and then for distribution patterns of subgroup population density and subgroup API. The goal was to set criteria that would identify approximately 50 schools having large under-represented student compositions yet substantially higher subgroup APIs than most other high schools with similar populations and another 50 high schools with similar demographic patterns yet much lower API scores.

Several selection schemes were explored but discarded mainly because they provided too few schools for the scope of this dissertation. Initially, I had hoped to select schools with large concentrations of students in the targeted subgroups that also had subgroup APIs that were at least as high as the top quartile of schoolwide APIs

statewide; unfortunately, this selection method would have resulted in only three schools being selected. Since the benchmarks formed by school wide APIs proved inadequate in selecting enough schools, I turned toward finding high subgroup APIs instead. Ultimately, I selected high schools that had at least one targeted subgroup in the state's top quartile of both population density and API for that subgroup. The low performing schools were selected by a similar process. They also needed to be in the top quartile for population density but in the bottom decile for subgroup API. By choosing to compare the top quartile with the bottom decile of subgroup APIs, my aim was to have a large enough sample that had substantially different student achievement. The selection criteria and number of schools selected are summarized in Table 1.

Table 1

Summary of High and Low Achieving Schools by Subgroup

	African American		Hispanic		SED	
	High API	Low API	High API	Low API	High API	Low API
API Range	650-757	451-521	668-751	490-570	657-792	485-566
API Mean	686	497	686	547	691	539
Pop. Range	10%-26%	12%-42%	59%-96%	58%-99%	52%-100%	52%-100%
Pop. Mean	16%	25%	73%	79%	65%	75%
No. Schools	25	17	16	30	20	35

Selecting Schools to Survey

Stage three of the research required identifying outlying schools to survey. The sampling strategy outlined above resulted in identifying 104 schools, which was more than I could afford to survey. I made scatter plots that showed the relation between subgroup API and population density of the targeted subgroup. Since I was most interested in the outliers, I started excluding schools identified in stage two that were closest to the trend lines until I had visually identified 65 schools. Schools that had multiple subgroups identified in stage two were also included.

Data Collection Procedures

Numeric Data

The CDE makes school level data available in a downloadable file format through its DataQuest website. Although later API data was available for the data collection phase, I used 2005 data because the other data needed for this research (such as graduation rates and staff qualifications) were not available. I downloaded files from the CDE's website containing additional student achievement (e.g., SAT and AP exam data, graduation and A-G completion rate data) and staff characteristics (e.g., teacher credentialing, experience, and education; number and types of certificated staff). In all, six different data files were merged together.

Survey Data

I designed a survey that asked principals about academic support for students, professional development and collaboration time for teachers, and administrative focus. This survey was piloted with local principals and then revised; see Appendix A for survey.

I sent the survey to 65 principals in November 2006 along with a small gift certificate to Starbucks. Principals who had publicly available email addresses also received an email invitation to participate in the survey. Principals who had not responded by early December were contacted again by mail (and, when possible, email) and invited to complete the survey. A total of 32 principals responded either by mail or with an electronic version of the survey on Survey Monkey.

Data Analysis Procedures

Each of the three stages of data collection required different analysis procedures. In stage one, I found key population and API benchmarks for my sample of 722 comprehensive high schools. The analysis examined schoolwide API distribution patterns focusing on finding the lowest and highest deciles and quartiles, as well as the mean. From there, I examined patterns of and correlations between subgroup APIs and population densities for African American, Hispanic, Asian, White, and SED students.

Stage two also relied on statistical analysis. It mainly compared means between the identified high and low performing schools on a variety of student achievement and staff characteristics variables. Analyses of variance (ANOVAs) indicated whether or not the differences were statistically significant.

Analysis of the surveys in stage three consisted of two parts. Several questions provided numerical responses. For these, I tallied the high and low performing schools' responses and then compared means. The surveys were also analyzed more qualitatively. Several categories of comments emerged, including categories that had not specifically been asked for in the questions. Comments that fit into these

categories were compiled in a database that I used to track surveys. Using this database, I was able to analyze similarities and differences between the high and low performing schools.

Limitations of Study

The quantitative data used in this study is compiled from many sources and therefore subject to a number of potential errors and inaccuracies. Although the CDE has attempted to define the measures that are reported to it, the size of the state and the number of people involved in reporting the information make it probable that there are some variations in interpretation and counting methods. Additionally, the more people involved in the process, the more potential for human error. It is, however, the data of public record and typically great care is used in the reporting and recording of this information.

More limiting, however, is what is *not* included in the data. Socioeconomic status plays a major role in how well students achieve. Although the data includes the percentage of a school that is comprised of socioeconomically disadvantaged students, it does not indicate socioeconomic status for ethnic subgroups. Just because two schools have similar compositions of subgroups does not mean that the subgroups are similar in terms of financial, educational, and other resources. This study does not look at the general wealth, safety, or health of a community, all of which influence students' academic performance. Nor does it look at other non-school resources that may be available to its students.

The survey data also has several limitations. The small sample size, particularly of the low performing schools, is problematic. Also, the length of time

needed to complete a survey (about half an hour) undoubtedly influenced who responded to it. Respondents tended to be proud of their schools' accomplishments of changes they had initiated. I suspect that principals who were discouraged by their schools' direction were less likely to respond.

The survey responses also revealed only a single perspective. Inevitably, principals have a particular perspective on what happens at their schools. Their day to day role as principals, in which they alternate between public relations spokesperson, boss, and head disciplinarian, undoubtedly colors what they are willing to say on a survey to a stranger. The length of experience both as an administrator in general and as an administrator at their current site also influences their perceptions. Some of the principals who responded were not even at their current schools during the 2004-05 school year from which the numeric data originates.

Summary

This study describes the academic achievement patterns of California comprehensive high schools, particularly focusing on the achievement of subgroups of students who traditionally are under-represented in college enrollment. It also attempts to discern differences in practices between high and low performing schools with large under-represented populations. The study uses a three stage approach. First, it examines API and subgroup population data. Next, it compares high and low achieving schools on a number of academic and staff characteristics variables. Lastly, it surveys principals at selected high and low achieving schools to gain a little more insight into school practices and priorities.

CHAPTER 4: FINDINGS

Setting the Context

Schoolwide API Patterns

The general patterns of academic performance in California comprehensive

high schools in relation to ethnicity and socioeconomic status found in this study are

congruent with the research on this topic (Coleman, 1966; Bainbridge and Lasley,

2002; Rumberger and Willms, 1992; Singham, 1998). The purpose of detailing these

patterns is to set a specific context against which to measure and describe specific

school performance. The data is largely numeric and come mainly from data published

on the California Department of Education's website. As quantitative analysis, it

numerically describes the broad patterns of the disparate and inequitable quality of

education that the children in our state receive. It is my desire that by detailing these

general trends of achievement and then examining the data of schools that outperform

those trends, we can gain some insight into factors that have the most likelihood of

strengthening all of our high schools.

In the state of California, there are 722 public, non-selective comprehensive

high schools with populations of at least 750 students that received an Academic

Performance Index (API) for the 2004-05 school year. For high schools, API is

calculated by a weighted averaging of students' scores on subject area California

Standards Tests (CST) and the California High School Exit Exam (CAHSEE). The

specifics are detailed in chapter three of this dissertation.

APIs for the 2004-05 school year for the 722 high schools selected are

distributed fairly normally with scores clustering around the median and relatively few

schools at the furthest extremes. The distribution of API scores is represented in the histogram in Figure 2. Although the APIs range between 482 and 935, about 80% of APIs fall between roughly 599 and 808, a range of approximately 200 points. The mean is 702 with a standard deviation of 79.8. The state's median API for comprehensive high schools is 699, approximately 100 API points below the state's target of 800. Only 12% of comprehensive high schools meet the state's target of an 800 API.

Mean =702

Median = 699

Std. Dev. = 79.8

N = 722
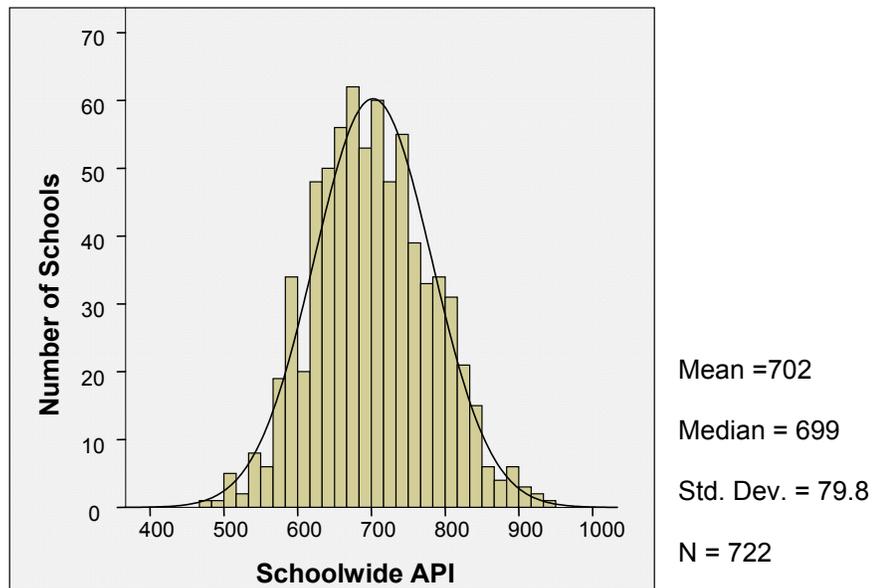
Figure 2. Distribution of schoolwide APIs for California high schools.

Subgroup APIs

Not only does each school receive an API, each significantly sized subgroup[6] also receives its own API. In order to gain a sense of subgroup academic performance, schoolwide API can be used as a rough gauge against which to measure subgroup APIs. Doing so provides three benchmarks that will be used throughout this discussion of results. As has already been mentioned, the median schoolwide API is just under 700. The lowest ten percent of schools score under 600 and the highest 10 percent (approximately) of schools score over 800.

Figure 3 summarizes subgroup API in broad terms. Nearly 90% of the White and Asian subgroups throughout the state have a subgroup API of at least 700, the state's average schoolwide API; however, only about 10% of Hispanic, African American, and SED subgroup APIs reach the state's median API. Nearly a 25% of White subgroup APIs and 60% of Asian subgroup APIs reach at least 800, while not even one school has Hispanic, African American, or SED subgroups that reach 800. At the low end of API scores, no schools have a White subgroup and only 2 schools (out of 299 schools) have an Asian subgroup that score under 600, the lowest schoolwide decile. Unfortunately, more than a quarter of Hispanic subgroup APIs and nearly half of African American subgroup APIs score under 600.

The discrepancies between African American, Hispanic, and SED APIs on the one hand and Asian and White APIs on the other are profound and pervasive. To see

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[6]Possible ethnic subgroups in California include: African American, American Indian, Asian, Filipino, Hispanic, Pacific Islander, and White. Additional subgroups include Socioeconomically Disadvantaged (SED), English Learners, and Students with Disabilities. Subgroups need to have at least 100 students, or have at least 50 students that comprise at least 15% of the school to be considered large enough to receive a subgroup API.

such glaring disparities in academic performance speaks to the educational inequities that continue to exist in California—and most likely our nation—at the start of the 21st Century. During the beginning stages of planning this research, I had assumed that there would be a few schools whose under-represented subgroups would have reached the state's 800 API target. Instead, there are none. Indeed, there are only about 100 high schools in the state—less than 15% of the 722 high schools included in this study—with an under-represented subgroup API that even exceeds the average schoolwide API of 700.
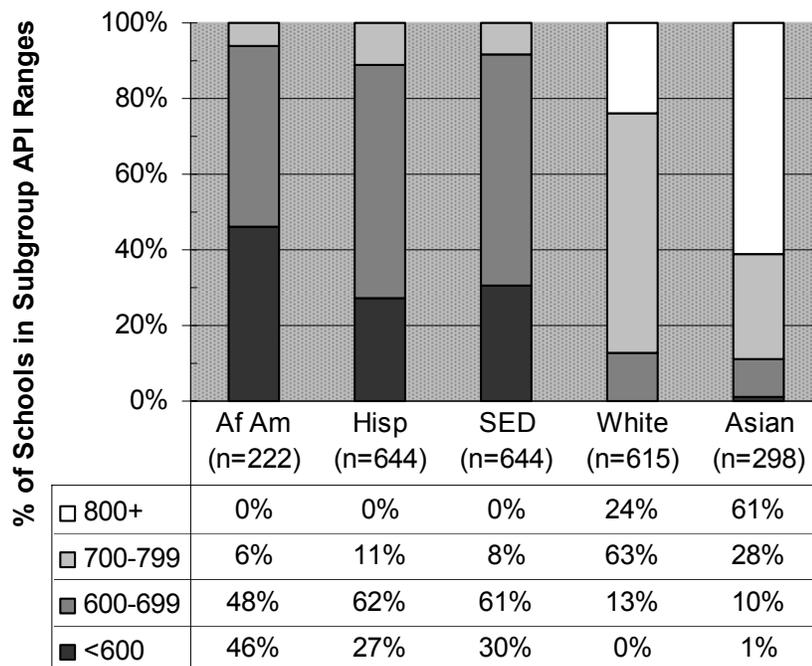
% of Schools in Subgroup API Ranges	Af Am (n=222)	Hisp (n=644)	SED (n=644)	White (n=615)	Asian (n=298)
□ 800+	0%	0%	0%	24%	61%
▢ 700-799	6%	11%	8%	63%	28%
▩ 600-699	48%	62%	61%	13%	10%
■ <600	46%	27%	30%	0%	1%

Figure 3. Subgroup API distribution.

Relation Between Subgroup API and Population Density

Not only do different subgroups have significantly different APIs, the density of a subgroup's population at a high school also correlates to its API as shown in

Table 2. In other words, a subgroup's API varies in relation to the size of the subgroup within a school. All subgroups have significant correlations between API and population density, but the strongest correlations are for African American and Hispanic subgroups. The correlations for these subgroups are negative; that is, the larger the African American or Hispanic population density is at a school, the lower its subgroup API is likely to be. The correlation between the SED subgroup API and population density is also fairly strongly negative. As a result, most of the highest APIs for this research's targeted subgroups occur at schools with fairly small concentrations of those subgroups, and schools with the largest such populations tend to have the lowest APIs for these subgroups.

Table 2

Correlation between Subgroup API and Subgroup Density

Subgroup	Pearson correlation coefficient
African American	-.42**
Asian	.11 *
Hispanic	-.46**
White	.37**
SED	-.35**
EL	-.15**

*p < .05; **p < .01

For example, throughout the state, 645 high schools have a valid SED subgroup API. Only 56 (9%) of these high schools have an SED API of at least 700,

the state's average schoolwide API. Approximately half of these schools have a SED population that is less than 15% of the school. Of these 56 schools, only 14—just a quarter of the handful of higher performing schools—have a SED population of at least 30%, which is the state's median SED population density. Said another way, of the 322 schools that have at least the state's median SED population density, only 14 (4%) have a SED API of 700 or more.
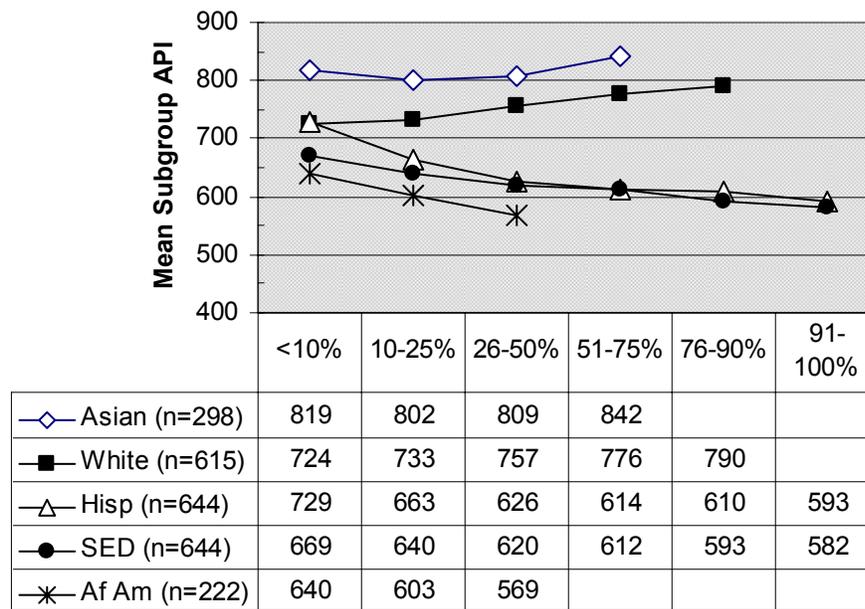
The results are very similar for Hispanic APIs. Statewide, 644 high schools have enough Hispanic students to have a Hispanic API. Of these 644 schools, only 74 (11%) have a Hispanic API of at least 700. Over half of the 74 high schools with higher performing Hispanic APIs have Hispanic populations of less than 15%. Of these 74 high schools only 10 have a Hispanic population of at least 34%, the statewide median for Hispanic population density in high schools. In other words, of the 322 schools that have at least the median population for Hispanic students, only 10 (3%) have a Hispanic API above 700.

The APIs for African American students show a similar but even more disturbing trend. Statewide, 222 high schools have a valid API for African American students. Of these 222 schools, only 14 (6%) have an African American API over 700; of these 14 schools, only 7 have at least a 10% African American population. Nearly half (45%) of the African American APIs are under 600. In fact, of the 157 schools with at least 10% African American population, 89 (56%) have African American APIs below 600.

In contrast, there is a moderate positive correlation between population and API for the White subgroup. Of the 616 schools with a White subgroup API, 535

(87%) of them had APIs of at least 700. For the 267 schools that have at least a 50%

White population, the percentage of White APIs reaching the 700 mark is even higher:

93%. Indeed, 40% of these schools had APIs of at least 800. Of the 81 schools that

have a White API lower than 700, 64 (80%) have a White population of less than

50%.

Figure 3 graphically shows the relation between a subgroup's population

density within a high school (horizontal axis) and its API. The average subgroup API

for each population span that had at least ten schools in it is shown in the chart.

(Blanks in the table indicate fewer than ten schools for the particular population band.)

The white subgroup shows a steady incline in its API as the percentage of white

students increase at a school. The Asian subgroup shows a similar pattern although

there is slight drop of API between 10% and the 10%-25% population groups. The

Hispanic, African American, and SED subgroups all show a decline in API scores as

the subgroup population density rises. The decline is particularly large for the

Hispanic subgroup, which has a 136 point drop in API between the lowest population

density band and the highest. Half of this decrease occurs between schools that have

fewer than 10% Hispanic students and schools that have between 10% and 25%

Hispanic students.

	<10%	10-25%	26-50%	51-75%	76-90%	91-100%
Asian (n=298)	819	802	809	842		
White (n=615)	724	733	757	776	790	
Hisp (n=644)	729	663	626	614	610	593
SED (n=644)	669	640	620	612	593	582
Af Am (n=222)	640	603	569			

Note. Blank cells have fewer than 10 schools.

Figure 4. Mean subgroup API by population density.

All of this illustrates the significance not only of ethnicity and socioeconomic status on academic performance, but also that population density is related to subgroup APIs. Generally speaking, the larger an under-represented population is, the lower its subgroup API. Therefore, it is important that criteria for comparison groups include population density as well as ethnic or socioeconomic status.

Describing the Outliers

What then can serve as reasonable criteria to describe the top performing schools in relation to the size of their subgroup populations and their APIs? Originally, I had hoped to find a reasonable number of schools that had APIs over 800 for the targeted subgroups so that I could examine their schools' practices. Unfortunately, no such schools currently exist in the state. I next planned to use subgroup APIs over 700,

but there are relatively few examples—only 15 if I wanted the schools to be in the upper quartile of population density for the particular subgroup.

Consequently, I needed to develop somewhat wider criteria for inclusion in the high performing groups. To be identified as high performing for this research, schools needed to have two conditions present. First, their population density for at least one of the targeted groups needed to be at least in the state's upper quartile of population density. Second, the targeted subgroup must have a subgroup API that was in the state's upper quartile for that subgroup. The low performing schools selected for this research also have population densities in the upper quartile for the state. However, to make for greater potential contrast between the groups' academic performance, the low performing schools have APIs in the lowest decile for their subgroup. Specific API and population density ranges as well as the number of schools in each group is summarized in Table 3. Because some schools met criteria for more than one subgroup, there were a total of 54 high performing and 50 low performing schools selected.

The three high performing groups of schools have fairly similar APIs. In fact, if one school with an extreme outlying SED subgroup API were excluded, all three subgroups would have identical mean APIs and very similar ranges. Population density varies among the high performing subgroups. Most noticeably, the African American subgroup has a lower population density than the Hispanic and SED subgroups, mainly because it is a smaller population statewide.

Table 3

Subgroup API and Population Density Summary for Selected Schools

Type of school	Subgroup API		Population density		
	Min-Max	M	Min-Max	M	N schools
Selected for African American API					
High API	650-757	686	10%-26%	16%	25
Low API	451-521	497	12%-42%	25%	17
Selected for Hispanic API					
High API	668-751	686	59%-96%	73%	16
Low API	490-570	547	58%-99%	79%	30
Selected for SED API					
High API	657-792	691	52%-100%	65%	20
Low API	485-566	539	52%-100%	75%	35

The low performing Hispanic and SED groups are similar to each other both

with their APIs and population densities. Their lowest APIs are in the high 400's, and

their highest APIs are within a couple of points of 568. Their mean APIs are within

eight points of each other. Their population densities are also similar to each other,

with their mean population densities less than five percent different from each other.

The African American group, however, has significantly different population density[7],

again because the size of the African American population in California is

substantially smaller than the other two subgroups. Most striking, though, is the

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[7] In an attempt to keep the high and low performing African American schools within 10% of each other for their mean population densities, I removed four low-performing schools that each have more than half of their population comprised of African American students. Had these four schools been included, the differences between high and low performing African American groups would have been even more pronounced for population and API.

difference in API. Nearly one third of the low performing African American schools had APIs not just under 600, but under 500; fewer than a tenth of the Hispanic and SED lower performing schools had APIs under 500. The *highest* API in this low performing African American group is 521. In contrast, fewer than 15% of the Hispanic low performing group and only 20% of the SED low performing group had APIs under 521.

In comparing high and low performing schools for the same subgroup, there are substantial differences, of course, in their API scores but relatively little difference in population density. The Hispanic and SED subgroups have about a 150 point difference for mean API between their high and low performing groups. The African American subgroups have a 189 point difference between the high and low performing groups. The low performing schools have a larger average population density for the targeted subgroup than the high performing schools; however, the difference is at most ten percent.

Clusters of High and Low Performance

Although a few schools have more than one high performing group, a substantial number of schools have more than one low performing group. Only three of the 54 (5%) the high performing schools have more than one high performing subgroup. For the remainder of the high performing schools, other targeted subgroups were excluded because their population density or their API was less than the inclusion threshold. Except in a very few cases, APIs for the other subgroups were at least the medians for their subgroups. So high performing schools tend to be strong for

all targeted subgroups, but rarely had exceptional performance results for more than one group.

Low performing schools, however, are much more likely to have multiple low performing subgroups. Of the 50 low performing schools, 26 (52%) have more than one low performing subgroup. It would seem that whatever factors within a school and its surrounding community inhibit the academic success for one group of under-represented students is apt to inhibit the academic success for all.

A number of school districts have at least a third of their high schools in either the high or low performing schools category. Out of the 54 selected high performing schools, 19 (35%) of them are in districts with other high performing schools. Even more strikingly, of the 50 selected low performing schools, 36 (72%) of them are in districts with a significant number of other low performing schools.[8] It appears that factors that affect student achievement can extend through a district. Undoubtedly some of these factors are part of the larger, non-school community. Still, it seems reasonable that districts can have significant impact on the performance of under-represented students' academic performance in high school.

One of the few examples of both a low and high performing high school occurring in the same district perhaps provides some insight into the potential of districts on student performance. In one of the outlying suburbs of Los Angeles, one school's African American API is the fifth highest in the state, while another school less than two and a half miles away is in the lowest decile for Hispanic API.

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[8] Los Angeles Unified is enormous. Of its 46 comprehensive high schools, 17 meet the criteria for low performing. If LAUSD is ignored, only 19 (58%) of the remaining 33 low performing schools come from districts with a significant number of other low performing schools.

According to the schools' School Accountability Report Cards (SARC), the high performing school is in a modern facility built in the past decade that has earned architectural renown. It uses only 31 of its 71 acres and serves about 1900 students. Just under 20% of its students qualify for free and reduced lunch. The other school is the district's lowest performing comprehensive high school. Due to recent overcrowding—it serves over 2300 students on a campus approximately half the size of the other high school—it has needed to open a satellite campus for freshmen that is largely composed of portable classrooms. Approximately three quarters of its population qualifies for free and reduced lunch; over half of its students are English Learners. Although the district is using bond money to repair and replace "dilapidated buildings," it is clear that the school with the greater needs for its students has historically received fewer basic resources.

In summary, schools that I identify as high performing normally have only one under-represented subgroup that is both in the upper quartile for its population density and API. About a third of these schools are in districts with other high performing schools. In contrast, schools I identify as low performing often have more than one subgroup that is both in the upper quartile for its population and the lowest decile for its API. Almost three-quarters of these schools are in districts with other low performing schools.

Academic Factors at High and Low Performing Schools

In addition to the data related to API, the CDE provides information about high school performance especially as it relates to high school completion and preparation

for college. This section discusses how the high and low performing schools compare to each other on these academic factors.

Dropout Rates

Using the definition of the National Center for Education Statistics (NCES), dropouts are students in grades 7-12 who have left school or are not attending by Information Day (early October). Exceptions include students who have transferred to another school, moved to another country, graduated, or received an equivalency diploma. The CDE reports dropout rate by school and disaggregates it by ethnicity, but not by socioeconomic status. Statewide, the overall dropout rate for 2004-05 is 3.1%. For African Americans, the dropout rate is 5.4% and for Hispanics, it is 4.0%. (DataQuest).

Each subgroup presents a statistically significant difference between the high and low performing schools. Table 4 summarizes the differences in dropout rate between the high and low performing schools. It first lists the dropout rates for all of the identified schools combined, then looks at each group of identified schools. In all cases, the high performing schools have a lower dropout rate, typically about a quarter of the low performing schools' dropout rates. I have included the dropout rate for White students as well because they are so much lower at low performing schools. This statistic for White students underscores low performing schools' difficulties in graduating students, even for subgroups that traditionally have a high graduation rate. Schools that I have identified as high performing have a lower dropout rate for African American and Hispanic students than the statewide average for all students of 3.1%. In

fact, they have a lower dropout rate than the statewide average for White students (2.0%), and a very similar rate to the statewide Asian dropout rate (1.3%).

The high performing schools are remarkably successful in retaining their students. Although such a finding may not seem surprising, such a finding is not necessarily a foregone conclusion. One could imagine a school having high standardized test scores and the resulting high API scores because the students with low academic performance had dropped out.[9] Such is not the case for these schools. It seems reasonable that students who are more successful in achieving the academic expectations in high school are more likely to remain in high school. These high performing schools have found ways to help their large populations of under-represented students succeed academically.

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[9] NCLB requires that high schools have a certain graduation rate or higher to meet Adequate Yearly Progress (AYP), perhaps to avoid this possibility.

Table 4

ANOVA on Mean Dropout Rates for High and Low Performing Schools

Type of school	Subgroup	Dropout rate (M)		df	F
		High API	Low API		
All selected schools					
	All students	0.9%	4.9%	103	79.37**
	African American	1.6%	6.4%	103	30.76**
	Hispanic	1.1%	5.0%	103	78.94**
	White	1.0%	11.2%	103	6.44*
Selected for African American API					
	All Students	1.1%	4.8%	41	27.19**
	African American	1.4%	6.0%	41	18.59**
	Hispanic	1.3%	5.0%	41	25.86**
	White	0.9%	10.1%	41	10.39**
Selected for Hispanic API					
	All Students	0.6%	4.8%	45	29.32**
	African American	2.0%	7.2%	45	8.30**
	Hispanic	0.5%	4.7%	45	32.75**
	White	0.7%	8.3%	45	6.50*
Selected for SED API					
	All students	1.0%	5.4%	54	33.12**
	African American	2.3%	6.3%	54	7.16**
	Hispanic	1.2%	5.3%	54	32.33**
	White	1.5%	14.4%	54	2.74

*p < .05; **p < .01

College Preparatory Course Work

Both the California State University and University of California systems require entering freshmen to complete certain courses in high school for admission. These course requirements are frequently referred to as A-G requirements. The state reports on the percentage of graduates who complete the A-G requirements and disaggregates the results by ethnicity. The A-G completion rate for both the selected high and low performing schools is comparable to the statewide average of 35.2%. Table 5 compares the means for A-G completion between the high and low performing schools. It first looks at all of the identified schools and their overall A-G rates as well as these schools' African American and Hispanic subgroups. It then examines each identified group of high and low performing schools and their African American and Hispanic subgroups. Statewide, the overall A-G completion rate is 35.2%; for African American students, the rate is 25.2% and 24.0% for Hispanic students. These results are fairly similar to those of the identified schools.

Table 5

ANOVA on Mean A-G Completion Rates at High and Low Performing Schools

Type of school	Subgroup	A-G Completion Rate (M)		df	F
		High API	Low API		
All selected schools					
	All students	33%	31%	103	0.81
	African American	26%	21%	103	1.76
	Hispanic	29%	23%	103	3.07
Selected for African American API					
	All Students	38%	31%	41	1.48
	African American	29%	21%	41	2.72
	Hispanic	26%	30%	41	0.46
Selected for Hispanic API					
	All Students	26%	30%	45	0.90
	African American	24%	18%	45	0.82
	Hispanic	22%	28%	45	1.40
Selected for SED API					
	All Students	32%	30%	54	0.22
	African American	26%	20%	54	0.89
	Hispanic	20%	30%	54	3.33

Although one might expect to see significantly more students at high performing schools meeting A-G requirements, such is not the case. There is no significant difference in meeting A-G requirements between the high and low performing school groups. This unexpected result is most likely due to the higher dropout rates for low API schools. Students who leave school do not meet A-G requirements but are not reflected in the A-G completion rate, thus skewing the A-G rate upward at schools with larger dropout rates. Said another way, high API schools are better at retaining students so may retain more low performing students who are less likely to take college preparatory courses. A mathematical model[10] that estimates the number of freshmen who end up completing A-G requirements four years later suggests that 32% of freshmen at high performing schools complete A-G requirements as opposed to only 24% at low performing schools; this difference is statistically significant (p<.01).

SAT Results

The CDE displays high schools' overall participation and performance on the SAT but does not disaggregate the data by subgroup within the schools. Therefore, the SAT data does not necessarily reflect how specific subgroups are performing but rather what is happening at these schools as a whole. It does give some sense about the extent to which students at these schools are considering college attendance. Statewide, the average percentage of seniors who take the SAT is 36%, which is about the same percentage as students completing A-G requirements. Table 6 first compares

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[10] Multiplying the A-G rate by the estimated 4-year completion rate provides an estimate of how many entering high school students graduate and meet the A-G requirements.

the participation rates on the SAT at the high and low performing schools. Participation rate is calculated by dividing the number of test takers by the enrollment number of seniors. At the identified schools, the difference in participation between the low and high performing schools is most pronounced at schools identified for their African American API performance. The average difference in participation is fairly small for the remaining groups of schools.

More noticeable is the difference in SAT performance. Table 6 also compares the average scores on the SAT at the identified high and low performing schools[11]. For the schools that I identified, the overall difference in the averages for high and low performing schools is about 160 points, which is statistically significant. For schools identified for their African American API performance, the difference between high and low performing schools is over 230 points on the SAT. This is similar to the larger difference in subgroup API scores for the African American subgroup. Statewide, the average SAT score for the 2004-05 academic year is 1020, which is only 45 points higher than the high performing schools' average. The difference in performance suggests that students at high performing schools are better prepared for the SAT. It is unknown if this advantage comes from special attention that these schools place in preparing students for the SAT, or from better instruction overall as evidenced by the higher APIs, or even from factors outside the school entirely.

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[11] In 2004-05, the SAT reported scores for the verbal and math subtests. The scores ranged from 200 to 800. These scores are frequently combined to create a composite score, which is what is reported in this study.

Table 6

ANOVA on SAT Participation and Performance at High and Low Performing Schools

Type of identified school	High API	Low API	df	F
% of seniors taking SAT (M)				
All selected schools	40%	34%	103	6.19*
Selected for African American				
API	45%	34%	41	6.85*
Selected for Hispanic API	35%	32%	45	0.65
Selected for SED API	37%	33%	54	0.72
SAT score (M)				
All selected schools	975	814	103	60.06**
Selected for African American				
API	989	757	41	30.07**
Selected for Hispanic API	926	806	45	7.42**
Selected for SED API	965	791	54	22.30**

*$p < .05$; **$p < .01$

Advanced Placement

Statewide, approximately 21% of juniors and seniors take AP exams. Similar to the SAT, data for Advanced Placement (AP) participation and performance data is not disaggregated by subgroup, so again, the results show what happens at schools rather than with subgroups (see Table 7). Unlike with SAT participation, there is generally a small but statistically significant difference in AP participation between high and low performing schools. Overall, high performing schools have about six

percent more of their upper classmen take AP exams than low performing schools. On one hand, the difference may seem small, but it most likely represents the equivalent of an extra two or three class sections of AP exams being offered.

The AP exams are scored on a five-point scale. Since many universities grant college credit for scores of three and above, the percentage of exams that earn at least a three is an indicator of how well students are prepared for college. Statewide, approximately 56% of exams earn at least a three. Overall, students at high performing schools have more than twice the rate of students scoring three or higher on AP exams than at low performing schools; at schools selected for their African American subgroup performance, the difference is three times. Counter to the other groups of schools, there is no significant difference between the high and low performing schools selected for their Hispanic subgroup performance.

Table 7

ANOVA on AP Participation and Performance at High and Low Performing Schools

Type of identified school	High API	Low API	*df*	*F*
% of jrs & srs taking AP exam				
All selected schools	24%	18%	103	11.30**
Selected for African American API	26%	17%	41	5.22*
Selected for Hispanic API	21%	19%	45	0.73
Selected for SED API	24%	18%	54	6.85*
% of exams scoring at least 3				
All selected schools	22%	10%	103	30.20**
Selected for African American API	24%	8%	41	10.51**
Selected for Hispanic API	14%	12%	45	0.95
Selected for SED API	21%	9%	54	23.93**

* $p < .05$; **$p < .01$

Staff Characteristics

There are some substantial differences in student performance between the high and low performing schools. The data collected about staff characteristics, such as teacher education and credentialing, as well as staffing ratios, provide some insights into how high performing schools are capable of achieving better results.

Teacher Characteristics

The teachers at low performing schools have substantially less training, education, and experience than their counterparts at high performing schools (Table 8). At the high performing schools identified in this study, only 10% of teachers lack full credentials, which according to the state website is the same as the statewide average for all high schools. [12] In contrast, nearly a quarter of teachers at low performing schools lack full credentials. Credentials are an indicator of formal teacher training. They may also indicate a person's commitment to teaching as a profession since it takes at least a year beyond under-graduate work to obtain a credential and ongoing coursework to maintain it.

Teacher credentialing at low performing schools is most likely linked to teacher education and experience as well. Nearly a third of the teachers at low performing schools have the minimal amount of formal higher education necessary to be hired as a teacher[13]. The difference in average number of years of teaching experience looks minimal at first glance. In fact, both groups are essentially the same as the statewide average of 13 years for high school teachers. However, the number of teachers who have two or fewer years of experience is significantly larger. On average, nearly a fifth of teachers at low performing schools have less than three years of experience. It seems likely that having a large number of a school's teachers with

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[12] Teachers without full credentials tend to work as interns, have emergency credentials, or are temporarily exempt from needing a credential.

[13] Although state policy states that all teachers are to have at least bachelors degrees, the CBEDS data for 2004-05 indicates that 0.5% of teachers statewide lack even the minimal four-year degree. At low performing schools, the rate of teachers lacking a bachelors degree is 1.5%--triple the statewide average.

minimal experience, marginal training and education, and little personal investment in teaching would negatively affect the quality of instruction at low performing schools.

Table 8

ANOVA on Teacher Credentialing, Experience, and Education

	High API	Low API	*df*	*F*
Full Credential	90%	78%	103	32.39**
Avg Yrs Experience	13	12	103	10.66**
% Less than 3 yrs experience	13%	18%	103	11.46**
BA or Less	18%	31%	103	28.51**
BA+ 30 credits	40%	33%	103	4.78*
MA or more	42%	36%	103	5.16*

* $p < .05$; **$p < .01$

Staff Ratios

By performing an analysis of variance (ANOVA), I compared the ratios of students to the three types of certificated staff members for high and low performing schools. For each ratio, I divided the total student enrollment by the full-time equivalents (FTEs) of teachers, pupil personnel, or administrators. Table 9 summarizes the results first at all the identified outlier schools, then at the schools identified for specific subgroups. Overall, there is a significant difference in means for the ratio of students to teacher between the high and low performing schools. Perhaps unexpectedly, however, the high performing schools have a *higher* student teacher ratio than the low performing schools (24.8 students per teacher versus 22.8 students per teacher). Although the difference is significant, it seems unlikely that a difference

of only two students per teacher could make much difference. However, the student-teacher ratio may be representative of other factors at a school. For instance, schools with a large number of special education students may have a lower student-teacher ratio because special education classes tend to be smaller. Also, some low performing schools may have additional funding with which they may choose to lower class size. Another possibility is that higher performing schools tend to have more educated and better credentialed teachers—and therefore more expensive teachers—than lower performing schools. It is quite possible that schools (and districts) that have more experienced teachers need to have slightly higher class sizes in order to offset the extra expense. It is also possible that lower performing schools may deliberately be trying to lower class sizes and consequently hiring less expensive teachers. If there is a causal relationship suggested here, perhaps it is that the quality of teacher matters more than the quantity of teachers.

At schools selected for their Hispanic and SED performance, the staffing ratios for pupil personnel (such as counselors, librarians, and school nurses) are significantly different for the high and low performing schools. They follow similar patterns to the ones just described for teacher ratios. I do not know if pupil personnel at high performing schools are better educated or more experienced than at low performing schools. It is also possible that high performing schools use different staffing configurations to maximize the impact of their financial resources. For instance, schools might use classified (non-certificated) employees to run libraries or manage the routine activities of a counseling office, which would reduce the number of

certificated pupil personnel. Although not statistically significant, administrative ratios are lower at high performing schools than at low performing schools.

Table 9

ANOVA on Student to Certificated Staff Ratios

Type of identified school	Type of staff	No. students to staff ratio (M)		df	F
		High API	Low API		
All selected schools					
	Teacher	24.8	22.8	103	8.14**
	Pupil personnel	416	369	103	0.94
	Administrator	701	750	103	0.27
Selected for African American API					
	Teacher	25.4	22.3	41	6.27*
	Pupil personnel	422	501	41	0.48
	Administrator	640	650	41	0.01
Selected for Hispanic API					
	Teacher	24.8	23.8	45	0.77
	Pupil personnel	432	312	45	13.62**
	Administrator	628	737	45	1.09
Selected for SED API					
	Teacher	23.9	23.5	54	0.18
	Pupil personnel	400	296	54	16.24**
	Administrator	801	787	54	0.01

* $p < .05$; **$p < .01$

Survey Results

Survey Response Rates

In early November 2006, I sent surveys to 65 schools that I had identified in a process described more fully in Chapter 3. In brief, the schools selected to be surveyed had the most extreme API scores relative to their population densities. Principals could complete either a paper survey and return it by mail, or they could complete the survey via the Internet. Principals who had not responded were contacted approximately a month later. Just under half of the surveys were returned. High performing schools had a substantially higher rate of return than at the low-performing schools. The number of surveys sent and returned is summarized in Table 10.

Nearly two-thirds of the surveys returned from low performing schools came from people who had served as principal for two years or less at their current school as opposed to 43% at high performing schools. Many of these new principals focused on changes that they were trying to implement. I do not know if the pattern of response is representative of statewide longevity for principals at poorly performing schools. It is possible that new principals at low performing schools felt more inclined to answer the survey since they may have felt less responsible for the conditions perceived as responsible for their schools' low performance. One other factor that affected survey completion rate was that some districts have policies that limit contact with outside researchers.

Table 10

Summary of Survey Responses

	# Sent		# Returned		Rate of Return	
	High API	Low API	High API	Low API	High API	Low API
African American	14	11	6	4	43%	36%
Hispanic	16	15	12	5	75%	33%
SED	15	18	6	4	40%	22%
Non-Duplicated Totals	37	28	21	11	57%	39%

Administrative Time

The survey asked principals to estimate the number of man-hours their administrative teams spend on a variety of common administrative responsibilities. Of all the questions on the survey, this item seemed to cause the most confusion among the respondents. Many of the principals' hours totaled either far more or far fewer than the number of hours their administrative teams would work in a week.[14] As a result, I do not see the results for this item as objectively accurate. Rather, they give an indication of the principals' perceptions about the relative allocation of administrator time on their campuses. I converted the number of man-hours into percent of total hours reported, which further emphasizes the relative amount of time spent on the different categories. The responses are summarized in Table 11.

Table 11

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[14] A principal who helped me by piloting the survey made a comment about this question that I suspect rings true for many of the respondents. He said that he had never thought before about how much time his administrators spent during the week on various tasks. As a result, he really struggled with the question. Although I modified the question somewhat to make it clearer, I chose to retain it in the survey because the principal said it was helpful to the work he was doing.

Principal Response on Administrative Time Allocation (Median)

	High API Schools	Low API Schools
Student discipline	24%	22%
Student supervision	20%	20%
Athletics/extra-curricular management	12%	12%
Academic monitoring	7%	6%
Facilities management	6%	10%
Teacher evaluation	10%	11%
Curriculum	8%	4%
Staff meetings	3%	5%

For both high and low performing schools, principals reported that student discipline and student supervision require the largest amount of administrators' time, accounting for nearly half of administrative man-hours. Managing athletics and other extra-curricular activities ranked third. The greatest difference between the low and high performing schools centers on facilities management. Principals at low-performing schools perceive that their administrative teams spend two-thirds more time focusing on facilities than their counterparts at high-performing schools do. Perhaps as a result, high-performing school principals reported that their administrative teams spent twice as much time focusing on curricular matters.

Use of Assessment

On the survey, half of the high performing and half of the low performing schools' principals volunteered comments about statewide assessments or accountability measures (e.g., API and AYP) that are derived from those statewide assessments. I find this significant since their responses came as responses to general survey items about school pride, school challenges, and major school goals. The survey makes no reference to state testing except as a sub-item on questions relating to common assessments given at the school. Such comments suggest the importance that principals place on statewide testing.

Comments tended to fit one of three categories. Four principals (36%) at low performing schools and three principals (14%) at high performing schools indicated the desire to improve test scores. Nine principals (43%) at high performing schools said their school took pride in their academic performance as measured by state tests, while only two principals (18%) at low performing schools made such comments (and one of those actually said they took pride in *improving* test scores). Such a response pattern is not surprising and indicates principals' awareness of accountability expectations and the importance that is currently placed on state assessments. The third and smallest category of responses about state assessments focuses on students. Two principals each from the high performing and from the low performing schools expressed their desire to help more students to pass the state's high school exit exam (CAHSEE), assumably so that more students can graduate.

In the survey, there were a series of questions that asked how frequently math and English teachers used common assessments and how frequently they discussed the

results of those assessments. The survey also had an open-ended question that asked principals for any additional comments they might have about assessment. From their responses, three general levels of implementation emerged regarding common assessments. Schools tend either to have a reasonably established process of using common assessments, to be in the beginning stages of using common assessments, or to have minimal interest in the use of common assessments. High performing schools indicated that they had mature common assessment practice on two-thirds of the returned surveys. Another 20% of the high performing schools indicated that they were in the beginning stages of using common assessments. Low performing schools indicated mature practice on only about one-third of the surveys and another quarter of the schools were in the beginning stages of implementing common assessments. Additionally, another 20% of low performing schools indicated that they had minimal common assessments and were not in the process of developing more. Use of common assessments and discussion of student results appears more prevalent at high performing schools than at low performing schools.

District Support

The survey asked no questions regarding the relationship between the school and the district; however, 40% of the respondents did make mention of their districts. These responses were proportionately divided between the high and low performing schools. The majority of district-related comments arose from the open-ended survey item about the use of common assessments. A number of principals responded that their districts had common benchmark tests, but there was no noticeable difference in the pattern of responses between the high and low performing schools. A small but

noticeable difference did emerge on a survey item asking about professional development. Only three (15%) of the high performing school principals indicated that the district was involved with professional development. Only one principal of a low performing school referred to the district in relation to professional development, and he was negative stating that professional development "has not been a priority of the district." Based on this survey, it would be difficult to claim that district focus on professional development is linked to high academic performance, but its absence could be related to low academic performance.

Post High School Plans

One possible measure of a high school's academic press is how it helps students to prepare for college. As was mentioned previously, A-G course completion rates are not significantly different between high and low performing schools. However, the survey provides some additional insights into how high schools view their mission in preparing students for their lives after graduation.

One of the survey questions asked principals about the post-high school plans of the most recent graduating class (2006). Choices include attendance at two- and four-year colleges, job training, military, and work. The state has no standardized way of tracking what students actually do after graduation, so principals approximated the percentages of their graduates' plans. Table 12 summarizes the medians of the principals' responses. High and low achieving schools have remarkably similar responses on this question. At both the high and low achieving schools, principals believe that the largest group of their graduates would attend community colleges, that

about a quarter of their students would attend four-year colleges, and that small

percentages of their students would receive job training or enter the military.

The largest difference between the two groups centers on the number of

students who would work immediately after high school and not pursue additional

education, training, or the military. Only a handful of students at high achieving

schools planned to start working immediately after high school, while on average a

fifth of graduates at low achieving schools planned to work.

Table 12

Graduates Post-High School Plans (Median)

	High API Schools	Low API Schools
Community college	40%	30%
Four-year college	25%	25%
Work	5%	20%
Job training	8%	5%
Military	5%	5%
Other	0%	0%
Unknown	0%	0%

The survey asked principals about how counselors routinely help with their

students' academic success. A majority of the principals at high performing schools

commented on how guidance counselors assist students in their academic planning

especially in their preparation for what follows high school (see Table 13). Such

assistance could come in the form of checking on students' progress in taking

sufficient courses to be admissible to public universities (A-G requirements) and developing six-year plans, which aim beyond high school graduation. Only about a third of the low performing schools' principals commented on the role of counselors in academic planning, and almost all of these comments focused strictly on high school graduation rather than on students' post-high school plans.

Clearly a single question on a survey does not begin to evaluate the impact of guidance counseling on post high school plans, but it does provide a glimpse into how principals perceive their guidance staffs and their function. It is highly likely that counselors at virtually all high schools guide students toward high school graduation—that is a central job function of a high school guidance counselor. What I find most interesting about these responses is that principals at high performing schools frequently link the question's term of "academic success" with students' long term goals, particularly their goals following graduation from high school; principals at low performing schools were much less likely to make such a connection.

Table 13

Number of Schools with Counselor Assisted Post-High School Plans

	High API Schools	Low API Schools
High School Plan Only	1	3
College Planning	8	1
College and Other Planning	3	0
No Comments	9	7

Other Survey Indicators of Academic Push

Principal comments about their school's academic expectations appeared on a number of the survey questions. About a quarter of the principals at high achieving schools indicated that their schools took pride in their schools' academic achievements or felt that their schools supported students in academically rigorous courses. No low performing school made equivalent comments. In fact one low performing school commented about the low expectations of the teaching staff (which he hoped to change over time) and another principal commented on the poor achievement of the school.

The survey asked principals about how students are placed into accelerated courses like Advanced Placement. A majority of schools used a variety of criteria that included grades, teacher recommendations, standardized test scores, and application essays. However, a third of the high achieving schools indicated that their schools have an open access policy for accelerated courses, where, as one principal phrased it: "all who want to challenge the rigor are welcome!" Although three (27%) of the low achieving schools claimed open access policies, two of those schools actually couple student request with grades and/or test scores for accelerated course admission. Because of how AP data is displayed, it is not clear if the high performing schools actually have higher under-represented student enrollment in advanced courses, but at least many of the high performing schools do not have a procedural barrier to their enrollment.

Perhaps the most striking set of survey responses relating to a school's academic press comes from one of the last questions. It asked principals to think of two or three teachers who are most influential with other staff members and to

describe the way in which they interact with students. Virtually every response to this question included comments about how these influential teachers show their concern and interest in their students. The striking difference was that eight—nearly 40%--of the high achieving school principals commented on how these teachers had high expectations for their students and helped them to meet those expectations. Only one (9%) of the low achieving schools made any such reference. Granted, two or three teachers at a school do not indicate the caliber of an entire faculty, but if these teachers truly are influential with their colleagues, it suggests that high expectations for students play a part in the teacher culture at these schools.

One last finding from the survey about teachers arose from a question about principal evaluations of teachers. Principals were offered a list of common evaluation categories and asked which two or three did their teachers know would almost always be looked for. The response rates between the two groups of schools were very similar on all categories except one. Teachers' rapport with students was mentioned twice as frequently at high performing schools than at low performing schools. Teachers actually developing a positive rapport with students could help to minimize students' need to resist or oppose the school. The combination of teachers having high academic expectations mixed with a positive rapport with students could be very powerful in raising student achievement.

<div align="center">Summary of Findings</div>

Analysis of the API result for 2005 reveals a fairly normal distribution of API scores throughout the state. However, the lowest performing schools almost universally have large percentages of African American, Hispanic, and/or SED

students enrolled. Subgroup APIs for these under-represented groups are also low. There is a substantial correlation between a subgroup's size and its API. For Asian and White students, the correlation is positive; for African American, Hispanic, and SED students, the correlation is negative.

The remainder of the research focused on comparing relatively high and low performing schools with large populations of under-represented students. I say relatively high because some of the schools selected had subgroup APIs as low as the 650s, which is equivalent to only the 25th percentile of high school APIs statewide. In comparing the high and low performing schools based upon data available on the CDE website, several differences stood out. First, low performing schools have a much higher dropout rate. When the dropout rate is integrated with A-G completion rates, freshmen at high performing schools have a much higher likelihood of graduating high school with the A-G requirements completed. Although participation on the SAT and AP exams is about the same, success on these college preparatory tests is significantly better at the high performing schools. The surveys also reinforce the impression of higher academic press at the higher performing schools in that they are more likely to encourage students to challenge themselves rigorously and prepare for college after graduation.

Staffing also shows some differences between the two categories of schools. Although low performing schools have a significantly lower student: teacher ratio than high performing schools, teachers are better educated at the high performing schools. Additionally, high performing schools have far fewer minimally experienced teachers.

Surveys suggest that principal turnover rate is higher at the low performing schools. Additionally, administrators seem to spend more time with managing facilities, which means they have less time to oversee academic matters. The surveys also indicate that high performing schools tend to have a more mature student assessment system. In general, the higher performing schools school staffs seem to be in a better position to provide their students access to more substantial learning.

CHAPTER 5: DISCUSSION

Patterns of Academic Performance in California High Schools

Perhaps the most striking finding in this study is the degree to which

demographics and API are linked. The roughly 10% of California comprehensive

schools that have met the state's API goal of 800 points are virtually always in affluent

communities and composed primarily of White and/or Asian students. Schools with

APIs over 800 have an average SED density of only 6%. In fact, for the top 25

schoolwide APIs, there are only three schools with enough students to even have an

SED subgroup API. Average population density for these top decile schools is

somewhat higher for Hispanic students (10%), but much lower for African American

students (2%). These top performing schools are radically different in demographic

composition to the rest of the state. The reverse is also true. The schools with the

lowest APIs are composed almost entirely of under-represented students.

Subgroup APIs provide a slightly different lens through which to see the

degree to which demographics and API correlate. Even at the high schools with APIs

over 800, the subgroup APIs of under-represented students are much lower than the

White and Asian subgroup APIs. There are no African American, Hispanic, or SED

subgroups in the selected California high schools that meet the 800 API goal. Only

about 10% of the comprehensive high schools in the state even have under-represented

subgroups scoring above the state's *median* schoolwide API of 700, and most of these

have relatively small under-represented populations. Typically the larger an under-

represented subgroup's population is at a school, the lower its subgroup API is likely

to be. To illustrate, even the schools I identified as the highest performing schools in

the state with large under-represented populations have subgroup APIs for those subgroups that, on average, are below 700. Only a quarter of those high performing schools had under-represented subgroup APIs above 700.

The disparity in academic performance as measured by API is profound and disturbing. Its pervasiveness strongly suggests multiple causes. Parents with fewer financial and educational resources have greater challenges in supporting their children's academic advancement (Phillips, Brooks-Gunn, et al.1998). When the lack of resources is extended through a community over generations, the challenges are compounded even further by the sense that opportunity is limited calling the utility— and therefore the importance—of education into question (Ogbu, 1985). Additionally, the discontinuity between students' homes and communities and the expectations of their schools certainly contribute to the magnitude of the achievement gap (Erickson, 1986; Ferguson, 2003; Garcia Coll, 1996).

Factors that Improve Under-Represented Student Performance

Despite the strong relation between academic achievement and demographics, schools are not powerless to bridge the achievement gap. The high performing schools in this study suggest ways in which schools even with large populations of under-represented students can counter the general trends seen elsewhere. [15] One of the

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[15] A handful of high schools around the state have bridged the achievement gap even more completely than the high schools studied in this dissertation. However, they are fairly small schools that would not fit the comprehensive high school model and each of them uses selection criteria in their admissions process. Although my focus in this study is on typical comprehensive high schools, these other schools' practices support my findings. For instance, The Preuss School at UCSD strongly presses its students to achieve academically, is very deliberate and systematic in how it supports students in their access to knowledge, and provides multiple structures within the school to make professional teaching conditions strong. Looking at how schools like Preuss achieve their remarkable results could provide key insights into how more typical comprehensive high schools could bridge the achievement gap.

clearer conclusions that I draw from my research is of the importance of what Jeannie

Oakes (1989) calls academic press and access to knowledge. The data suggest a

number of ways in which these two constructs intertwine at the high performing

schools.

The differences in how high and low achieving schools treat assessment can be

viewed as markers of academic press and access to knowledge. The data collected

about assessment in this study reveal that high performing schools tend to allow

greater access to higher levels of learning. For instance, the AP data reveal that high

performing schools encourage students toward high academic achievement more

frequently than the low performing schools. More students at high performing schools

take AP exams than at low performing schools. Since virtually all students who take

AP exams also take corresponding preparatory courses (and often prerequisite courses

as well), the high performing schools must be offering more sections of academically

rigorous courses and finding ways of supporting students to take them. According to

the surveys, high achieving schools are more likely to allow all interested students to

enroll in accelerated classes rather than placing procedural or academic obstacles in

their way. Such an approach is consistent with Viadero & Johnston's observation

(2000) that schools that met under-represented students' needs better focused on

providing academically challenging courses. Increasing AP course enrollment and

allowing "anyone" into AP classes could lower overall results. However, the high

performing schools have more than twice as many passing scores on AP exams than

their low performing counterparts. Along with greater access to the accelerated

courses, the high performing schools are better at helping students meet the collegiate expectations represented by AP.

The CDE data also indicate that high performing schools have a small but statistically higher participation rate on the SAT than low performing schools. It is quite likely that the high performing schools have more students take these college entrance tests than their low performing counterparts because they have found ways of encouraging more students to consider attending college. The higher rate of A-G completion for students who enter the high performing schools would confirm this. These schools make a college preparatory course of study more available and more achievable than their counterparts. The survey results also suggest that the high performing schools actively promote college attendance. When asked what counselors do to help students be academically successful, almost all principals who responded at high performing schools indicated that their counselors guided their students in meeting college entrance requirements. Almost none of the principals who responded at the low performing schools commented about college on this question. These are similar findings to what Mehan, Hubbard, Villanueva, and Lintz (1996) found in San Diego City Schools where counselors at more affluent schools routinely helped students prepare for college admissions, while counselors at less affluent schools rarely did. All in all, the higher achieving schools in my study found multiple ways of encouraging high expectations for their students (Ferguson, 2003; Uhlenberg & Brown, 2002).

The surveys suggest one more observation about assessments in general. Principals at high performing schools indicated greater attention to statewide

assessments, and their schools tended to have more mature assessment practices than the low performing schools. Not only are assessments an important part of the instructional process, they often serve as a tool to describe the academic demands expected in a course. Schools that have well-made assessments and use them both to guide instruction and shape curriculum have a means of defining academic expectations both for students and for teachers. It seems much more likely that the courses in these schools could be more systematically rigorous and targeted on meeting students' needs.

Students' access to knowledge is substantially affected by the quality of teachers available to them. Teachers who are well trained, experienced, and well educated have more to offer their students. There is a substantial difference between the high and low performing schools in regard to overall teacher quality. It is not that the high achieving schools in my sample have amazingly qualified teachers. By most measures, they are very similar to state averages. Instead the low achieving schools have more *under-prepared* teachers. For instance, although teachers at high achieving schools averaged only one additional year of experience than at low achieving schools, there are substantially more novice teachers at the low achieving schools. High performing schools on average have a few more teachers with advanced degrees, but low performing schools have many more teachers with no more than a bachelors degree than at high performing schools. On average there are twice as many teachers at low performing schools (nearly 20%) who do not have their full credentials as at high performing schools. The students who could most benefit from having an experienced and well trained teacher (Uhlenberg & Brown, 2002) are very likely to

have inexperienced, under-prepared teachers and, therefore, have reduced access to knowledge.

Although the CDE does not collect data on practices like collaboration or professional development, the data on teacher education and experience provide a glimpse into professional teaching conditions. Having large numbers of inexperienced, under-prepared, less educated teachers undoubtedly places a strain on the professional environment at a school. Schools could let their novice teachers struggle alone as they learn how to become effective teachers, but doing so hardly seems a satisfactory method of systematically increasing teachers' abilities over the long-term or of providing solid instruction for the current students in the short-term. Schools can instead support these teachers with training, mentors, and other guidance, but doing so draws the energies and focus of more experienced teachers and administrators. It would be the rare school that would have the capacity to support one out of five of its teachers effectively during the induction phase of their career and also be able to support the long-term professional needs of established teachers. Compounding the challenge at the lowest performing schools, there are relatively few experienced and well educated teachers to support the new teachers.

The large numbers of novice teachers particularly at the low performing schools suggest that teacher turnover rates are high. A report from The Education Trust-West (2005) discusses how practices in most California districts allow experienced teachers to migrate from the schools with the greatest student needs to more affluent schools with fewer under-represented students. As these experienced teachers move to better schools, they leave behind vacancies that often are filled with

less qualified teachers. Building and maintaining a strong professional culture at a school with a high turnover rate and many inexperienced teachers are problematic at best. Staffing schools according to student needs rather than teacher preferences is considerably different from typical practice currently, but it could significantly advance the quality of education available to the students with the historically greatest needs.

One finding that I had not purposely designed my study to look for emerged regarding the role of districts on the achievement gap. Many of the identified high and low performing schools were clustered in districts with a number of other high or low performing schools. Likewise, in the surveys, the principals at high performing schools were more likely to mention district support than the principals at the low performing schools. It is possible such results occur because of underlying demographics of the larger community that my study did not examine. However, Harris and Chrispeels (2006) note a growing body of research that suggests the important role that districts can have in improving schools. Stronger central support can encourage school site personnel to increase academic press for students by setting high academic expectations for students and then providing focused support in helping schools achieve those goals. Central support could also improve the professional teaching conditions in a variety of ways. Often large scale professional development is arranged centrally. Making sure that this professional development is of high quality and focused on key academic goals is crucial, but so is setting up structures that allow for ongoing professional conversations and workgroups. Although not mentioned by Harris and Chrispeels, district policies and practices might improve students' access to

knowledge by improving the equity of assigning teachers to schools according to student need. For instance, anecdotally I know of districts in San Diego County encouraging schools to develop master schedules that intentionally place their best teachers with students who have the largest academic struggles.

It may also be that these districts with high performing schools have a sense of accountability to someone (the district) who is closer to home. Spillane (1996) writes that districts should not be viewed as mere implementers of state (or federal) policies, but rather they can take a "proactive policy-making stance, defining policy problems and developing their own instructional policies." Such policies can have greater sensitivity to the local context. If districts have clear expectations for their schools' performance and are supporting schools in the attainment of those goals, then it would be easier to meet state expectations. The reverse would also prove true. In districts that are ineffective in the support that they provide or unfocused in their expectations, schools must fend for themselves. The principal at the low performing school who expressed pride in his school's autonomy from the district office clearly felt that he was on his own. The work of bridging the achievement gap in high schools is large enough that no one should have to attempt it alone.

CHAPTER 6: CONCLUSION

Throughout this dissertation, I have referred to a framework described by Oakes consisting of academic press, access to knowledge, and professional teaching conditions. The findings from my research presented here lead me to suggest adding a fourth component to Oakes's framework: Resources (Figure 4). This extends her model to take into consideration tangible factors like funding, facilities, and instructional materials, and intangible factors like the use of instructional time, pedagogical expertise, and community support.

Press for Achievement

**Professional
Teaching Conditions**

Access to Knowledge
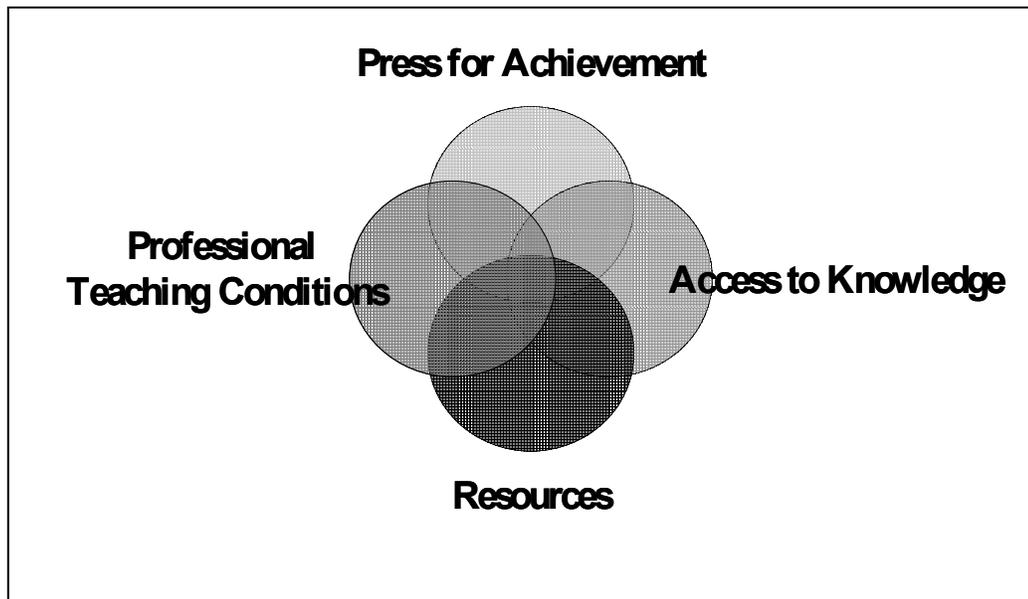
Resources

Figure 4. A revised framework.

The importance of resources has been implied throughout the dissertation. Disparities in resources can be flagrant as in the suburban district near Los Angeles that had a high performing school in a beautiful, state of the art school on a hillside, and a low performing school on an overcrowded, dilapidated campus. The *Williams. v. State of California.*(2004) lawsuit serves as another graphic example of the inadequate

distribution of resources in schools. In order to receive such basic resources as useable restrooms and textbooks, families in San Francisco needed to sue the state of California. The issue of resources can be more subtle as well. Administrators at low performing schools spending more time to manage facilities quietly steals time from instructional needs. High teacher turnover drains professional expertise. A school's stance with the community it serves can erect barriers that interfere with a community's ability to support its schools.

The data show the strikingly disparate achievement results for high school students in California. Even the highest achieving schools with large under-represented populations rarely reach state averages. Still, the high performing schools, do provide a glimpse at practices that could improve the education for many of California's students. The findings of this research in conjunction with the research literature present important implications for schools and districts, for state and federal accountability systems, as well as for future research.

<div align="center">Implications for Schools and Districts</div>

It is important that under-represented students are pressed to grow academically. To do so, schools must provide meaningful and supported access to rigorous courses and high expectations. The high performing schools in this study are likely to offer more accelerated courses and use school policy and guidance to encourage students to take them. Schools need to find ways of challenging under-represented students academically. Repeated cycles of lowered expectations need to be confronted and addressed both in how individual school personnel perceive and treat students, and in how policies and procedures shape a school culture.

For example, high schools desiring to lessen the achievement gap would be wise to re-think how they design courses. Schools that work at creating more remedial classes are likely to have more students in them. Instead, finding ways of offering more advanced courses and removing procedural barriers to enrollment in these classes will increase academic press. Of course, students may need additional support such as tutoring, supplemental courses, and programs like AVID to be successful. Access to rigorous classes is ultimately counter-productive if students fail to meet the increased expectations. Also staff members, particularly school counselors, need to be alert as to how they can encourage students to take these more advanced classes.

Perhaps the most significant way that schools can provide genuine access to knowledge is through the quality of their teachers. As Uhlenberg and Brown (2002) point out, under-represented students need suitably qualified teachers to help counter the factors that would otherwise inhibit their success. Unfortunately, schools with large populations of under-represented students typically have many inexperienced and poorly prepared teachers. The large numbers of inexperienced teachers at the low performing schools are congruent with Education Trust West's findings (2005) that experienced teachers migrate to more affluent schools since the work is often easier yet the compensation is the same.

Districts and schools need to develop practices that encourage placing under-represented students with their best teachers in two complementary manners. First, districts need to ensure that schools with high populations of under-represented students have experienced, well-qualified teachers. Secondly, schools need to make sure that their most talented teachers are indeed working with the students having the

greatest need for them. Districts could work with teacher associations to find effective incentives such as extra support, smaller classes, or additional preparation time that could attract strong teachers to where they are most needed. Although not strictly a policy issue, increasing the prestige of successfully working with students having the greatest need rather than treating such classes as the "dues" new teachers must pay for entering the teaching profession would also improve the caliber of teachers working with under-represented students.

Credentials, education, and experience are the staff characteristics that the CDE records, but such markers of teacher quality may be insufficient. The literature strongly indicates the need for teachers to use culturally and educationally sound pedagogy (Knight et al., 2004; Ladson-Billings, 1994; Mehan et al., 1994; Moll et al., 1992). Although my study did not examine pedagogical styles specifically— qualitative methods would allow a more appropriate design for that—survey responses did indicate that high performing schools more frequently held the expectation that teachers would build rapport with students. At their most fundamental level, culturally sensitive methods of teaching are based on teachers actively building rapport with students by recognizing and respecting the strengths that students bring with them. Professional development coupled with evaluation could help teachers interact with students in ways that would lower cultural barriers.

Most challenging, districts may need to re-consider the comprehensive school model. Maybe comprehensive high schools as they are currently configured are unable to fully bridge the achievement gap. Current trends toward creating charter schools and smaller schools could have some benefit as they allow such schools to focus on

fewer and often more specific goals. Additionally, such schools allow student and their families some choice, which could make for greater alignment of school goals with students' needs. Still, such elements of choice are not magical cure-alls. Los Angeles, Oakland, and San Francisco all have fairly extensive magnet schools that allow for choice on the part of students, yet many of these schools are very low performing. Re-packaging schools without fundamentally changing their practices is highly unlikely to produce meaningful and substantial change.

Implications for Accountability

Although my study used a different accountability metric, it is difficult to think of school accountability in 2007 without considering the federal accountability system. No Child Left Behind (NCLB) speaks loudly on behalf of closing the achievement gap. The data in this study show widespread gaps in achievement in schools with large under-represented populations–gaps whose complexities will not easily be overcome by merely focusing on test scores. Unfortunately for those schools with large, under-represented populations, the federal accountability model within NCLB does not recognize this reality and is attempting to legislate equity of performance while ignoring the inequities of students' lives, as well as the inequities of their school experiences, facilities, faculties, and other resources.

I say unfortunate because the schools with the largest under-represented populations will experience NCLB's sanctions first and most severely, even those that I have identified as the highest performing. These sanctions will rarely produce better schools. NCLB sanctions allow students to flee "failing" schools and to receive tutoring services from non-certified companies. Under the best of circumstances, these

changes may allow students more access to knowledge, but another outcome is much more likely, one in which very little will have changed to improve the actual conditions for teaching and learning. As students leave "failing" schools, they will overcrowd and likely overwhelm the "successful" schools.. The tutoring received from outside companies is short-term and disconnected from what the student is learning in school. More severe sanctions in NCLB include school re-structuring, which will tend to focus the academic program on remediation rather than on academic press. The disruptions inevitably caused by mandated re-structuring are likely to deteriorate the professional teaching conditions at a school as well. Such sanctions mask more powerful ways of helping under-represented students.

If the goal of accountability systems is merely to label schools as "good" or "bad," perhaps our current AYP system is sufficient. However, if the goal of accountability systems is to truly help measure our schools in meaningful ways so that we can better meet the academic needs of our students, then I believe we need to re-think what is measured. Current systems rely almost exclusively on standardized test data, which creates an abundant emphasis on test preparation in schools, but may ignore other more fundamental issues affecting educational equity.

Student test measures alone do not tell the complete story of how to reach under-represented students, as my research and the literature clearly show. There are other, more potent factors that may play a bigger role in improving the success of these populations. Monitoring, measuring, and acting upon contextual issues could enable growth and could help bridge the achievement gap more effectively. Can we measure how accessible rigorous courses are to under-represented students and

respond to those measurements? Are we examining the professional environment for teachers? Are we measuring, as Oakes (1989) suggests, pivotal components of school context, such as use of instructional time, grouping practices, and commitment to student learning. Widening the scope of our accountability measurements to include Oakes's suggested model could provide valuable focus for schools and districts to improve the overall education of their students.

<div align="center">Implications for Research</div>

There is no shortage of possible topics to explore in further research, but I would most strongly encourage investigating the following three topics. First, examining high performing schools more thoroughly could provide valuable insights. My research was looked at a large sample fairly broadly. Most of the more fine grained qualitative research on high schools that I read focused on how high schools failed their students (e.g., Anyan, 1995; Fordham, 1996). Focusing instead on one or two high achieving high schools and examining them deeply could provide valuable insights for other schools. My study suggests that the higher performing schools find ways to encourage their students to challenge themselves academically and support them to be successful. It could be of particular value to see how they create and maintain such a school culture. I would be particularly interested in seeing how Erickson's (1987) concept of trust between student and teacher apply.

Second, it would also be helpful to know if progress has been made under the current accountability systems. A longitudinal study could reveal the types of changes that have occurred over time. For instance, have certain schools made significant advances over time, and what has allowed them to do so? More systemically, has

achievement increased during the past few years in California, and, if so, has it increased in similar ways for under-represented students? Based on anecdotal evidence and cursory views of state data, I suspect that achievement has improved somewhat but that the achievement gap has remained essentially the same. In part, I believe that little has changed to bridge the state's achievement gap because we may be looking at the wrong details, which leads to my last recommendation.

Under the above section on accountability, I suggest a long yet incomplete list of school features that if monitored carefully could encourage substantial schoolwide (or for that matter statewide) change. Attempting to measure all of them is most likely unrealistic. I do not believe that it is clear which features have the greatest potential for positive change. Similarly, it is important to find the best markers of those identified features. Further research could help to focus schools' attention on practices that would have the most power to bridge the achievement gap.

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Appendix A: High School Principals' Survey

Thank you for answering this survey. You may omit questions, but the more complete your answers, the more valuable your survey will be.

School Name: _____

1. **What are two or three things that your school takes pride in?**

2. **What are two or three of the most significant challenges that many of your students face? How does your school attempt to address these challenges?**

3. **What support is available for students at your school who are not being successful academically? Please include whether such support is voluntary or mandatory for these students.**

4. **Approximately how often do core academic teachers have scheduled time to discuss and plan curricular or instructional improvements with each other for their courses? Do not include meetings that are primarily informational, such as school staff meetings.**

☐ Rarely (0-2 times/year)

☐ A few times per year (3-7 times/year)

☐ About once per month

☐ About twice per month

☐ About weekly

☐ More than once per week

The next four questions ask about the use of common assessments in English and Math classes. That is, are there assessments or assignments that all teachers use in a particular course? If so, how regularly do teachers discuss the results of those assessments or assignments? At the end of this section, there will be a space for any additional comments that you would like to make.

5. On average how often are the following types of assessments used *in common* by all ENGLISH courses of a particular title?

	Never in common	1-2 times/yr	3-5 times/yr	At least 6 times/year
Course exams (e.g. end of unit, end of term, benchmarks)				
Writing assignments				
Projects				
Practice exams for state testing (e.g. STAR, CAHSEE)				

6. How regularly do English teachers discuss STUDENT RESULTS of the following assessments with each other?

	Not Applicable	Rarely, if ever	Sometimes	Almost always
Course exams (e.g. end of unit or term, benchmarks)				
Writing assignments				
Projects				
Practice exams for state assessments				
Results of state assessments (e.g. STAR, CAHSEE)				

7. On average how often are the following types of assessments used *in common* by all MATH courses of a particular title?

	Never in common	1-2 times/yr	3-5 times/yr	At least 6 times/year
Course exams (e.g. end of unit, end of term, benchmarks)				
Writing assignments				
Projects				
Practice exams for state testing (e.g. STAR, CAHSEE)				

8. How regularly do Math teachers discuss STUDENT RESULTS of the following assessments with each other?

	Not applicable	Rarely, if ever	Sometimes	Almost always
Course exams (e.g. end of unit or term, benchmarks)				
Writing assignments				
Projects				
Practice exams for state assessments				
Results of state assessments (e.g. STAR, CAHSEE)				

9. Comments about common assessments?

10. Have your core academic teachers received significant and sustained professional development anytime during the past two years? If so, what have been the two or three most significant topics? Why were these topics selected?

11. What sorts of instructional support are routinely used by your teachers? Mark all that apply.

☐ BTSA support providers

☐ Peer coaches

☐ Professional learning community

☐ Subject area specialists

☐ Special Education specialists

☐ English Learner specialists

☐ Other_____

12. Including yourself, how many administrators are at your school?

13. On average, how many man-hours does your entire administrative team spend on each of the following duties during a typical week?

	Administrative hours per week
Supervision (e.g. lunch duty, extra-curricular event)	
Student discipline	
Athletics and extra-curricular management	
Students' academic progress monitoring	
Facilities management	
Observation/evaluation of teachers	
Curriculum (e.g. course alignment, assessment)	
Staff meetings	

14. **What are the two or three things that your core academic teachers would believe are the most important to you and your administrative team when making classroom observations?**

☐ Lesson organization

☐ Content accuracy

☐ Alignment of lesson to curricular standard

☐ Classroom management

☐ Differentiation of instruction

☐ Teacher rapport with students

☐ Student engagement with learning task

☐ Adherence to pacing guidelines

☐ Use of specific instructional strategy(ies)

☐ Other _____

15. **If you have teachers released from classrooms for special assignments, approximately how many periods are used for each of the following categories?**

—— Student discipline

—— Support for special programs

—— Staff development/teacher mentoring

—— Athletics/Extra Curricular management

—— Other administrative support

16. **How many counselors does your school have?**

17. **Do your guidance counselors routinely help your students with their academic success? If so, what are the two or three most important things that they do?**

18. **How are students placed into academically accelerated classes (e.g. honors, Advanced Placement, International Baccalaureate)?**

19. **If a student is not being successful with an accelerated class, what typically happens?**

☐ Student is moved to a non-accelerated class

☐ The teacher and/or counselor work out a plan with the student

☐ Tutoring or other academic help is available

☐ The student continues in the class for the year

☐ Other_____

20. **Approximately what percent of your school's Latino population are enrolled in at least one academically accelerated class.**

☐ Less than 10%

☐ 10%--25%

☐ 26%—50%

☐ 51%-75%

☐ more than 75%

☐ The Latino population at my school is very small at my school

☐ I'm not sure

21. Approximately what percent of your school's African American population are enrolled in at least one academically accelerated class.

☐ Less than 10%

☐ 10%--25%

☐ 26%—50%

☐ 51%-75%

☐ More than 75%

☐ The African American population at my school is very small at my school

☐ I'm not sure

22. Approximately what percent of the class of 2006 planned to do each of the following during the fall? Total should equal 100%.

—— Attend a community college

—— Attend a four-year college

—— Receive specific job related training

—— Serve in the military

—— Work (and not do one of the above)

—— Other

—— Unknown

23. Think of the two or three teachers who are most influential with other staff. How would you describe the way in which they interact with students?

24. **What are two or three of your top priorities for your school this year?**

25. **How many years have you been an administrator (as of June 2006)?**

26. **How many years have you been an administrator at your school (as of June 2006)?**

Thank you very much for taking this survey.