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California Opportunity Indicators: Informing and Monitoring California's Progress Toward Equitable College Access

Jeannie Oakes, Julie Mendoza, David Silver

A multi-campus research center harnessing UC's research expertise to increase the quality and equity of California's diverse public schools, colleges and universities.

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UCACCORD

Abstract

This chapter describes the University of California's All Campus Consortium on Research for Diversity's (UC ACCORD) development of a set of College Opportunity Indicators to monitor and inform progress toward reducing disparities in educational achievement and college access among California's diverse student population.

Indicators are single or composite statistics that provide "at a glance" information about complex systems. Since the 1960s, government has used indicators to monitor and report the status of important social conditions and outcomes, track changes over time, and predict likely changes based on past trends. Over the past two decades both the National Science Foundation and the US Department of Education have constructed and reported indicators of K-12 education. ACCORD's Indicators follow in this tradition. They are grounded in the premise that, if Californians are to open college doors to its diverse population, policy and practice must be guided by more nuanced information than what the state now regularly reports.

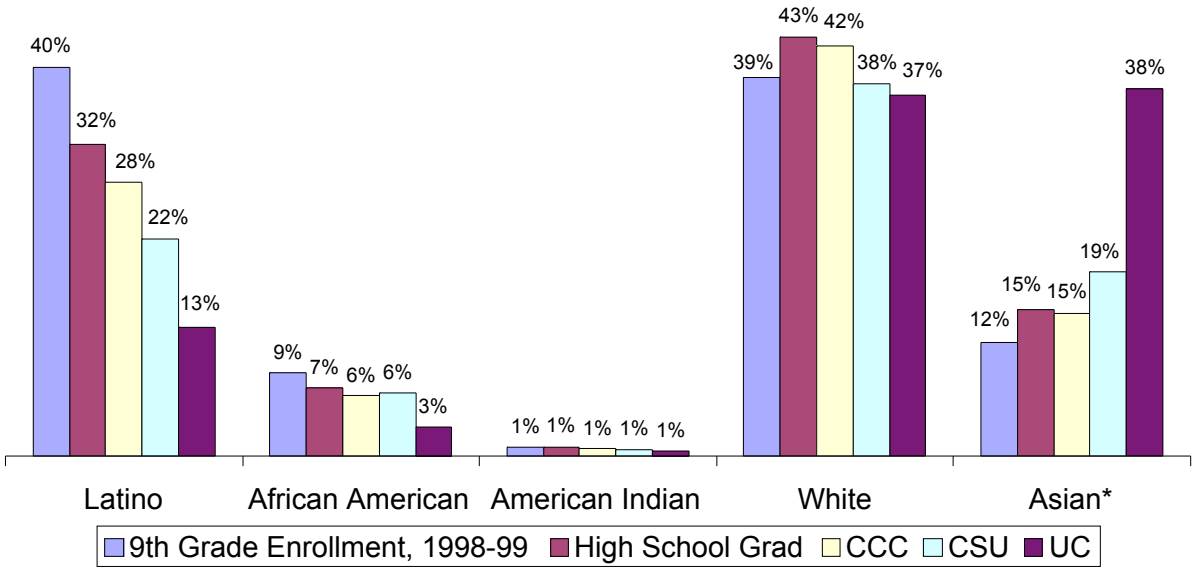
UC ACCORD's the College Opportunity Ratio (COR), for example, allows policymakers and the public to monitor how well California public high schools move students from being college-hopeful 9th graders to being college-ready graduates. CORs are calculated for every California comprehensive public high school and displayed on Geographic Information System (GIS) maps for every legislative district in the state, setting schools' CORs against the median household income of residents in the neighborhood where the schools are located. These colorful maps reveal the startling degree to which high school completion and college preparation differs for students at different schools, in different legislative districts, and among different racial/ethnic groups. Although COR is not a truly longitudinal indicator, it offers more useful information than any other publicly reported statistic now available about high school graduation rates and college preparation.

Other UC ACCORD indicators report students' access to a set of K-12 school conditions that are critical for college preparation. These indicators provide a research-based framework for understanding the barriers to equity in achievement and college going and for monitoring the state's progress toward removing those barriers. Indicators of students' access to a "College-Going School Culture," for example, document how student survey data can used to construct meaningful indicators that measure policy alterable conditions that underlie disparities in student achievement and college-going among California's diverse student population.

Background

We begin with a reminder of what is well known. There are stark statewide disparities among California's racial and ethnic groups in four-year college participation. As their age cohort becomes undergraduates, Latinos and African Americans shrink dramatically as a proportion of the student bodies at the state's public universities. Particularly striking is the extreme under representation of both groups in the selective University of California (UC). The bar graph below shows the changing racial composition of California's student population as young people move through high school and into the freshman classes at the California Community Colleges (CCC), the California State University (CSU) and the University of California. Consider a single group below, California's Latino students. As high school freshmen, they represented 40% of the student population. At their graduation, they represented 32% of the high school graduates. They were 28% of freshmen community college attendees; 22% of CSU freshmen; and only 13% of UC freshmen. A comparison of these data across other groups on the graph makes clear California's dramatic disparities in access to higher education.[1]

Figure 1: California Student Diversity
1998-1999 9th Graders Compared to 2001-2002 High School Graduates and to Fall 2002 First-Time Freshman



* Includes Pacific Islanders and Filipinos *(chart created by Celina Torres, MPP, Tomás Rivera Policy Institute)*

As bad as they are, the 2002-2003 disparities represent a substantial recovery from the significant drop in the rates of admissions of African American and Latino students to the University of California following the Regents 1995 resolution ending affirmative action at the university and the 1996 passage of Proposition 209, a ballot initiative prohibiting the consideration of race, ethnicity and gender in admissions and hiring in California. The ban on affirmative action prompted the University of California and California State University systems to become far more aggressive in their efforts to use "outreach" programs to create a more diverse pool of high school graduates who are eligible and competitive for the university in a race-neutral admissions environment.

In 1997, a blue ribbon UC Outreach Task Force proposed a four-pronged approach for reaching students at these schools: (a) student-centered academic development; (b) school-centered systemic reform; (c) recruitment and yield activities, and (d) research and evaluation. In 1998, the Task Force plan was funded rather generously by the legislature, with the proviso that within five years the University double the number of African American, Latino, and American Indian students that were graduating from high school eligible for admission to the university and increase by 50 percent the number that were "competitively eligible"— for admission to the system's two most selective campuses—Los Angeles and Berkeley.

Unfortunately, the expanded Outreach programs and their partner educators in K-12 schools had little information to guide them as they devised policies and programs that would make college access more equitable. Existing data about K-12 schooling—test scores, API rankings—and rates of CSU and UC eligibility conveyed information about educational outcomes, including inequities in college preparation. However, they provided almost no clues about inequalities in learning resources and opportunities within schools or about the types of interventions that would be most effective in removing barriers known to attribute to differences in student achievement and college-going. Neither did they provide answers to other important policy-relevant questions: Are the college-going disparities a statewide phenomenon? Are they worse in particular regions? At particular types of schools? Where along students' schooling trajectories do the disparities appear? What policy alterable conditions underlie the disparities? When and where might intervention be most effective?

Without empirical data to answer such questions, policymakers and the public lacked meaningful ways to monitor the system's progress towards meeting the Legislature's ambitious goals. Specifically, there was no way to know how effective the new interventions were or if college preparation was becoming more equitable. Consequently, policymakers and the public were consigned to wait patiently for the long-term outcome. This wait-and-see approach did not mesh well with California's contemporary fiscal reality and the pressures to make appropriations and budget cuts based on cost-benefit analyses. The State's highly charged political environment around diversity and admissions was only exacerbated by the lack of empirical data to justify the benefits or cost-effectiveness of the UC's new outreach policies and programs.

Not only were reliable, research-based answers to these questions needed but the answers should be easily understood, widely reported, and updated over time. That way they could become part of public deliberation, policymaking, and educators' decision-making. The University of California's All Campus Consortium on Research for Diversity (UC ACCORD) sought to fill this information gap by using the considerable academic research on K-12

schooling and college preparation to develop a set of "opportunity indicators." These indicators, ACCORD believes, could be useful both for informing efforts to make college access more equitable and for monitoring the impact of those efforts.[2]

How Might Opportunity Indicators Help?

ACCORD's California Opportunity Indicators project uses existing and new data to construct and report indicators about the status of college access in the state and the distribution of K-12 schooling conditions that are critical to making college accessible.[3] ACCORD seeks to use the indicators as a mechanism for translating equity-focused research into a format that is useful to policymakers, educators, and the public. The goal is to provide credible, provocative, and useful information on college preparation, college access, and college success among the state's diverse students, explain the conditions under which the struggle for college access occurs, and monitor and inform the state's progress toward greater equity.

ACCORD envisioned a set of college opportunity indicators as serving similar purposes to the indicators that are used to monitor the economy, the criminal justice system, or other social systems. In each of these important domains, we use statistical indicators to describe and monitor complex conditions that we would probably judge imprecisely or miss altogether in day-to-day observations. We use indicators as yardsticks to measure progress toward some goal or standard, against some past benchmark, or by comparison with data from some other institution or country.

Indicators characterize the nature of a complex and hard to measure system by regularly measuring some of its key components.[4] They represent not just the measured components themselves, but also underlying properties that are not directly or perfectly measurable. For example, we recognize that the quality of the teaching force is central to a well-functioning school system and to college preparation, but we also know that there is no direct way to measure it. So, we measure aspects of teaching, such as years of academic training in the discipline taught, or possession (or lack of) a credential in the subject matter, or years of experience–or some combination of these– as indicators of teacher quality, even though we realize that these aspects of teaching do not completely measure the underlying properties of teacher quality. The most useful indicators tell a great deal about the entire system by reporting the condition of a few particularly significant features of the system. For example, the number of seniors enrolled in a school is an important fact, but it does little to inform judgments about how well the education system is functioning. In contrast, data on the proportion of seniors in a school that complete the college-prep curriculum required for admission to the four-year colleges provide considerable insight about a school's college-going culture.

ACCORD's goal is to develop a set of opportunity indicators that will report the current status and monitor changes in California's underrepresented[5] students' opportunities and outcomes; permit a glimpse of future levels of achievement and rates of college preparation; provide insight about barriers to achievement and rates of college preparation; and inform policy discussions aimed at increasing underrepresented students' achievement and college participation. Accordingly, UC ACCORD is developing and reporting status indicators and leading indicators. "Status indicators" will report educational outcomes that are needed to understand rates of school success and college access. These outcomes include such measures as the size of the achievement gaps among various

groups of students and the relative representation of students from various groups among UC eligible students. "Leading indicators" monitor whether the state is furthering its capacity to reduce disparities in learning resources and opportunities. As described more fully later in this chapter, ACCORD has conducted and drawn upon existing research to develop leading indicators. These indicators point to a set of conditions that students in educationally disadvantaged communities require for learning and successful college preparation. For the most part, middle- and upper-middle class youngsters from college-going families routinely enjoy these conditions in their schools and communities.

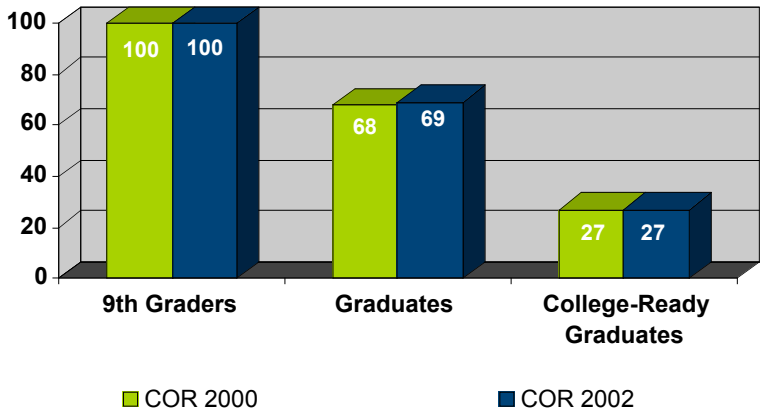
The College Opportunity Ratio-Constructing New Indicators from Existing Data

Over the past two years, ACCORD has designed, developed, and presented a new status indicator--the College Opportunity Ratio (COR). COR is an indicator of a highly complex phenomenon: schools' success at preparing college-hopeful ninth graders to become college-ready graduates. COR is calculated using cross-sectional data collected by California's Department of Education. The data are combined into a three number ratio. The first number in the ratio represents ninth grade enrollment[6], the second number represents the number of graduates four years later,[7] and the third number represents the number of graduates who completed the minimum college preparatory curriculum[8] required for admission to both the University of California and the California State University systems.[9]

For example, if a high school had 300 ninth graders in Fall 1998, 200 graduates in Spring 2002, and 100 graduates that completed the A-G requirements with a "C" or better, the COR for this school would be represented as: 100:67:33. A reader would know that for every 100 ninth graders, the school had 67 graduates four years later, and 33 graduates who had completed the A-G requirements. Although COR is not a truly longitudinal indicator, it offers more useful information than any other publicly reported statistic now available about graduation rates and college preparation in the state.[10] In addition, it helps us see the need for the state to report graduation and college preparation rates as a percentage or ratio of all those students for whom the state's schools have been responsible.

In addition to calculating and reporting the COR for each high school in the state, aggregate CORs can be calculated for school districts, counties, legislative districts, and the state as a whole. Additionally, the COR can be calculated for all students, and for sub-groups of students by race, ethnicity, and gender at each of these levels. For example, Figure 2 shows, the average COR across 854 California comprehensive public high schools in 2002 was: 100:69:27.[11] In other words, for every 100 ninth graders enrolled during the 1998-99 academic year, California high schools graduated 69 students, on average, four years later, and 27 college-ready graduates. We compared the statewide average COR's for the class of 2000 with class of 2002 and found virtually no difference between these cohorts.

Figure 2. Statewide COR for the Classes of 2000 and 2002



In contrast, our analysis of disparities among California's 58 counties in preparing ninth graders to become college-ready graduates showed considerable regional variation. For example, the ratio of ninth graders to college-prepared high school graduates averaged 100 to 31, or greater in the San Francisco Bay area counties of Marin, San Francisco, Santa Clara, and Alameda. In contrast, the ratio of ninth graders to college-prepared high school graduates across most of the Central Valley counties averaged 100 to less than 20. This analysis makes clear there are considerable differences by county and suggests that region may be one important variable to consider when exploring disparities in college preparation and access for all of California's students.

The most significant variation, however, appears when the COR is disaggregated by racial and ethnic groups across the state, by individual high schools, and by racial and ethnic groups within high schools.

Figure 3. Statewide COR for the Class of 2002 by Student Race and Ethnicity

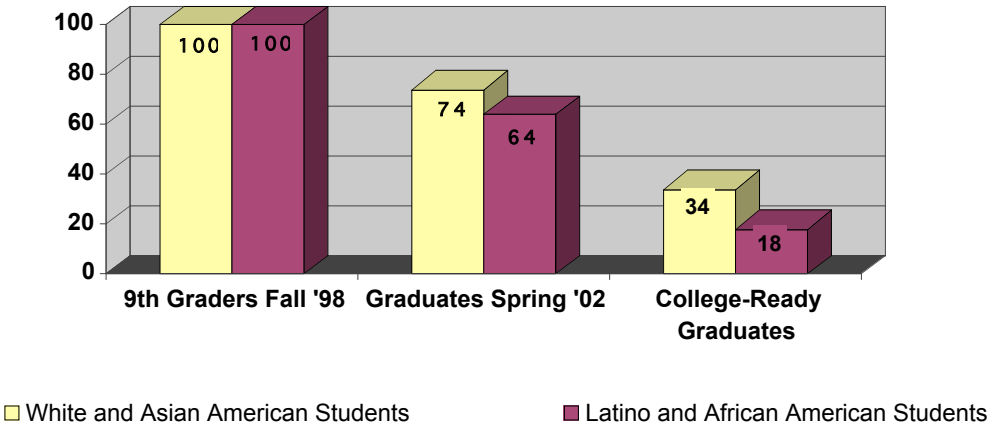


Figure 3 illustrates the disparities between the average statewide COR for White and Asian American students and for students from racial and ethnic groups that are underrepresented in the University of California system (Latino, African American, and American Indian). Notice the difference in Spring 2002 graduates. For every 100 White and Asian American ninth graders in 1998, 74 graduated four years later, compared to 64 Latino, African American, and American Indian students. Thirty-four White and Asian American ninth graders graduated college ready, compared to only 18 Latino, African American, and American Indian students.

We also found considerable variation among schools in preparing ninth graders to become college-ready graduates. This variation is found among schools' overall CORs and in their CORs disaggregated by race and ethnicity. Figure 4 below illustrates this variation in one legislative district in Southern California. Senate District 21 includes Pasadena, Glendale, Burbank, and a portion of the city of Los Angeles. It is a legislative district with tremendous racial and economic diversity and in some ways serves as a microcosm of the state. As the figure illustrates, in addition to analyzing the COR by race and ethnicity for each high school in the state, ACCORD designed colorful GIS maps to display the CORs for every high school in each legislative district against the context of median household income of the high school's community.

Figure 4 (See Appendix) displays the CORs for 19 high schools in Senate District 21 for two groups: students who are underrepresented in the UC system and those who are not. It depicts the COR for each high school mapped against the context of the base map, which is median household income. The top portion of the figure displays the CORs for groups of students with low rates of UC participation (African American, Latino, and American Indians and the bottom portion displays the CORs for White and Asian American students in the same schools. Each school has a bar chart on both maps; chart shows how well the school is doing with the group of students featured on the map. The first bar of each chart represents 100 ninth graders at the school in 1998 from the group of interest. We varied the heights of these bars among schools in an effort to show the relative differences among schools in the overall size of their student populations from various groups.[12] The second bar represents the number of 2002 graduates for every 100 ninth graders in 1998, and the third bar represents the number of college-ready graduates for each 100 ninth graders. This map clearly illustrates how well the schools in Senate District 21 are doing preparing students for college.

In Senate District 21, as elsewhere in the state, we see enormous variation in COR ratios between schools and within schools in this district. In general, we found that schools in higher wealth communities in this district and across the state prepare more ninth graders for college. Importantly, however, this map clearly shows that the wealth of a community *does not always* predict how well schools prepare students for college.

The overall pattern is that White and Asian American students emerge from schools in Senate District 21 better prepared for college. We also see dramatic differences in the effectiveness of these 19 high schools in preparing ninth graders for college.

Figure 5 (See Appendix) zooms in on the western region of Senate District 21 and displays the CORs for underrepresented students in two high schools: Grant and North

Hollywood. Both of these schools are located in communities with similar median household income and the schools have similar school characteristics such as the percentage of students in the school participating in the free/reduce lunch program, the percentage of Latino and African American students, the number of teachers with emergency credentials, and the number of English learners. Both schools graduate roughly the same number of ninth graders, 44 and 43, respectively. Yet, notice the difference between the schools in the number of graduates who are college-ready. For every 100 ninth graders enrolled in Grant 23 graduate college-ready compared to only 7 at North Hollywood High. This map suggests that the wealth of a community *does not always* predict the educational outcomes for schools. It provides compelling evidence that school context matters, and that educational policymakers need to monitor each school's progress towards reducing disparities in academic success and college-going as well as monitoring the state's progress as a whole.

Organizing and presenting equity indicators by legislative district illustrates how the reporting of existing educational data can be made more compelling and more useful than simply reporting statistics in traditional formats. COR GIS maps help stakeholders and legislators visualize information in new ways that reveal relationships, patterns, and trends not visible with other traditional data reporting methods. GIS maps also provide new insights to policymakers and their constituents about how well the education system is functioning in their own communities, and help to generate thoughtful discussions of how policy alternatives might remedy inequalities that have become salient locally.

In 2003, ACCORD researchers hand-delivered COR GIS maps to every member of the California Legislature. We also held a legislative briefing in the State Capitol to unveil this new equity indicator. During visits with legislators and their staff we were able to tailor our message to each elected official in ways that helped the policymaker reconsider issues important educational issues, redefine the problem, and help them discard old assumptions or myths about student achievement and college access.

What Else Do We Need to Know? Leading Indicators

The College Opportunity Ratio tells us a great deal about how well schools are preparing students. It certainly tells us far more than grossly under-estimated dropout rates that schools now report or the "graduation rates" that schools will have to report under the No Child Left Behind (NCLB) Act. However, outcome indicators like the COR, alone, cannot explain *why* particular students, schools, and communities achieve at low levels and fail to realize their hopes for college. The narrow focus on outcomes tends to make the gap in learning resources and opportunities in California schools invisible. Outcome indicators on their own also risk misrepresenting schooling failures as the failure of individual students and their families.

A great deal happens between the time a child enters school and when he or she becomes a college-hopeful ninth grader, and between the ninth grade and high school graduation. The school conditions and opportunities between these points in time help determine whether that student graduates from high school with the minimum eligibility to enter a four-year college or university and that determines whether a prepared student applies and is admitted to a four-year college. While having adequate opportunities to learn is important for all students, it is

particularly important for subgroups of students who historically have been underrepresented in four-year colleges and, by extension, whose families are less likely to have higher education experience from which to draw guidance. Importantly, these conditions and opportunities result from educational policies and professional decisions—decisions that we can change. Interrupting the patterns of inequitable college access requires that we better understand the consequences for young people across California's diverse communities of educational policies and educators' decisions.

Consequently, UC ACCORD is also developing "leading" indicators that measure conditions in K-12 schools that affect the quality of education students' receive and their access to college preparation and admission. After an extensive review of the literature on school achievement and college preparation, we identified the following seven critical conditions for student achievement and college access:

- Safe and Adequate School Facilities
- College-Going School Culture
- Rigorous Academic Curriculum
- Qualified Teachers
- Intensive Academic and Social Supports
- Opportunities to Develop a Multi-Cultural College-Going Identity
- Family-Neighborhood-School Connections Around College Going

We define and explain the importance of each of these conditions below. Examples of studies that support the importance of each condition are reported in the notes at the end of the paper.[13]

Safe and Adequate School Facilities

- **What is it?** Students must attend schools that are free of overcrowding, violence, unsafe and unsanitary conditions, and other features of school climates that diminish achievement and access to college.

- **Why does it matter?** Schools must be free of overcrowding and deteriorating facilities so students and teachers can devote their attention and energy to learning and teaching.[14] At schools where laboratory, athletic, and teaching facilities are in decay or under-resourced, faculty quit at alarming rates. Unsafe, deteriorated, and overcrowded schools threaten students' social values of integrity, discipline, and civic-mindedness and allow little enthusiasm for life-long learning.[15] Overcrowding reduces students' ability to pay attention increases school violence.[16] In such schools students achieve less; rates of teacher and student absenteeism are higher than at schools that do not have these problems.[17] Sometimes overcrowding is addressed by putting students on year-round, multi-track schedules. These students suffer interrupted and lost instructional time; limited access to advanced courses and specialized programs; ill-timed breaks and correspondingly limited access to extracurricular activities and enrichment programs; and poorer academic performance.[18]

College-Going School Culture

- **What is it?** In a college-going school culture, teachers, administrators, parents, and students expect students to have all the experiences they need for high achievement and college preparation. Adults encourage students to exert the necessary effort and persistence throughout their entire educational career, and adults work diligently to eliminate school-sanctioned alternatives to hard work and high expectations. These high expectations are coupled with specific interventions and information that emphasize to students that college preparation is a normal part of their childhood and youth. Students believe that college is for *them* and is not only reserved for the exceptional few who triumph over adversity to rise above all others.

- **Why does it matter?** Students' learning is strongly tied to the expectations of those around them and the quality of their opportunities to learn. Minority students, in particular, perform poorly when their teachers do not believe in their abilities.[19] Consequently, in a school with a strong college-going culture educators believe that all of their students can learn at very high levels. The school culture that expects all students to spend time and effort on academic subjects and emphasizes that effort will pay off fosters high levels of academic achievement.[20] Of course, high expectations alone are not enough. However, when high expectations are present, teachers seem more able and willing to provide rigorous academic instruction and press for high standards. In turn, students respond to high expectations with greater effort, persistence, and achievement.[21] Caring adult advocates who provide specific information and assistance for college going help students achieve that goal.[22] They facilitate close, supportive relationships and keep tabs on their students' progress.[23] Similarly, school-created peer groups can help students believe that college going and the hard work it takes seem "normal."[24] Students in such groups support one another's aspirations, share information, and counter the many forces in low-income communities that work against high achievement.

Rigorous Academic Curriculum

- **What is it?** Students are prepared for, and have access to, algebra in middle school and college preparatory and AP courses in high school.

- **Why does it matter?** Students' course taking is key to their attending a four-year college, and the sequence of these courses --leading to advance work in high school-- must start in middle school and early high school.[25] Students learn more in advanced courses with a rigorous curriculum. Further, advanced courses are prerequisites for admission to competitive four-year universities. The impact is particularly powerful for African American and Latino students. Often, students who thought they were "succeeding" in high school by getting good grades are devastated to find out that their courses have not prepared them with the skills, knowledge, or advanced credit to enter a four-year college.

  The more academic courses students take, the more positive their schooling outcomes. Advanced courses (particularly in science and mathematics) have positive effects on student achievement, in students' preparedness for college, and in their success in college-level

work.[26] Eighth graders who take algebra perform considerably better on the National Assessment of Educational Progress (NAEP) mathematics exam, and the more math they take the better they do.[27] Moreover, the intensity and quality of students' high school courses is the most powerful factor in increasing students' chances for completing a four-year college degree, and that impact is far greater for African American and Latino students than any other pre-college opportunity.[28] Preparing for challenging high school classes demands rigorous middle school curricula—one undifferentiated by ability groups or tracks. Most students learn more in high-level classes (ability groups or tracks) than do students *with comparable prior achievement* who take lower level classes.[29] This should give pause to those who may believe that if students do not take advanced classes it is because they are lazy or are not smart enough.

Qualified Teachers

- **What is it?** Knowledgeable, experienced, and fully certified teachers provide instruction that engages students in work of high intellectual quality. Importantly, in diverse communities, high quality teaching makes highly valued knowledge accessible to students from diverse backgrounds.

- **Why does it matter?** One of the most powerful factors in students' academic success is their access to well-prepared teachers. Teacher quality including teacher certification status, degree in field, and participation in high-quality professional development all have a significant impact on student outcomes.[30] Improving the quality of teaching in the classroom has the greatest impact on students who are most educationally at risk. In some instances, the effects of well-prepared teachers on student achievement are stronger than the influences of student background factors, such as poverty, language background, and minority status.[31] Well-qualified teachers provide a wide range of teaching strategies: they ask questions that make students think and answer fully; they address students' learning needs and curriculum goals; they make subject matter accessible to diverse groups of students;[32] and they make rigorous learning satisfying and fun. Poorly qualified teachers spend more time on drill and practice.[33] Moreover, well-prepared teachers of students of color and language minority students use strategies that bridge students' home culture and language with the knowledge and skills that matter at school. They demonstrate a valuing of all cultures in the academic curriculum.[34]

Intensive Academic and Social Supports

- **What is it?** Teachers and counselors play a pivotal role in informing and preparing secondary students for college. Yet, all students require supports and assistance that take place outside the classroom or school. To navigate the pathway to college successfully, students need support networks of adults and peers who help access tutors, material resources, counseling services, summer academic programs, SAT prep, coaching about college admissions and financial aid, and a myriad of other timely assistance.

- **Why does it matter?** Pointed efforts to provide students with the resources and information crucial for college preparation are particularly important for low income minority students who may not have the "social capital" or "college knowledge" necessary to negotiate the academic pipeline.[35] Interventions that bring additional assistance to low-income minority students boost their achievement in elementary school, their success in college preparatory middle and high school classes, and their likelihood of admission to and success in college. This help is more effective when it provides additional instruction on the material in students' regular classes than when it consists of a separate remedial curriculum. Teachers and counselors are the primary sources of "college knowledge" for Latino families, and they serve as "cultural brokers" for students seeking information and strategies for college access and academic success.[36] As the College Board makes clear to schools offering Advanced Placement courses to disadvantaged minority students, "[S]chools with successful AP programs realize that not only should students be challenged with a rigorous curricula and motivation for learning, but the support network should also be present that makes it possible for them to succeed and difficult to fail."[37] Moreover, the social networks students develop when they work one-on-one or in after-school settings with college students and well-informed adults can provide a form of access that students lack elsewhere in their families and communities.[38] When students in academic support programs become friends, they are more likely to succeed.[39]

Opportunities to Develop a Multi-Cultural College-Going Identity

- **What is it?** Students see college going as integral to their identities; they have the confidence and skills to negotiate college without sacrificing their own identity and connections with their home communities. They recognize that college is a pathway to careers that are valued in their families, peer groups, and local communities.

- **Why does it matter?** Race and culture play an important role in shaping students' college-going identities, and this role is related to the historical under representation of many minorities in colleges. Partly as a result of past and present cultural and racial attitudes in the broader society, students of color may believe that college "is not for me." Alternatively, they may believe, often with some cause, that they cannot hold both the cultural identity and language they have and value as well as the identity of a high-achieving student. Adults must work to shape a school culture that does not force students to chose between the culture, language, and values of their home and community and the majority culture and values that are broadly, if unnecessarily, associated with high academic achievement.

  In contrast to commonly held views that low income students devalue education, studies suggest that they more likely turn away because of a real or perceived lack of opportunities.[40] A recent RAND study of low-income high school graduates who were eligible to attend the University of California, but chose not to found that the students were most deterred by their beliefs that the university is "not for people like me," and that that they weren't prepared for the university's high demands.[41] These perceptions arise, in part, as students internalize negative labels assigned to their racial and cultural groups. Black and Latino students are most susceptible to what Claude Steele terms "a stereotype threat." That is, students who perceive that their race plays a role in their performance do perform poorer on measures of academic achievement.[42]

Creating community and school-based programs help create environments where college attendance can be seen as the norm, not the exception, for students of color . Students benefit when outreach and student support programs are located in the worlds that students inhabit.[43] And when these students can look up to older youth and adults as models for college and college-based careers, they develop identities that also define these choices as valued ways to give back to their families and communities.[44]

Family-Neighborhood-School Connections Around College-Going

- **What is it?** Connections between families and schools build on parents' strengths and consider them a valuable education resource for students. Educators and community groups work together to ensure that all families have access to essential knowledge of college preparation, admission, and financial aid. Moreover, parents and the community are actively involved in creating all of the other critical conditions described above.

- **Why does it matter?** Ongoing, respectful, and substantive communication between schools and families is as important to school success in low-income neighborhoods as it is in affluent ones.[45] Going beyond the annual parent-teacher conference, successful urban schools engage parents in seminars, workshops, and other outreach efforts to help parents gain knowledge about a wide range of education issues. These may include national standards and assessment; tracking and access of underrepresented students to post-secondary education; sharing of information sources within the school, on the Internet, and elsewhere, to name just a few. The emphasis of this "scaffolding" is not just to transmit necessary facts and procedures, but to give parents the tools for them to become effective advocates for their children. This emphasis, already adopted by affluent parents, is necessary to help low income parents understand and negotiate the pathway to the post-secondary education system.[46] Community organizations such as local churches and boys' and girls' clubs can help communicate to parents the importance of providing their children with a challenging curriculum, as well as supporting parents who want to see positive changes implemented. Coordinating community and social services and university-school partnerships can support families and provide essential scaffolding for school success.[47]

  The seven critical conditions outlined above are the basis for a comprehensive, research-based framework for understanding the barriers to equity in college going and for monitoring the state's progress toward removing those barriers. The college chances of every student—wealthy or poor, regardless of race or ethnicity—will be affected by whether he or she has access to these seven critical school conditions. It is important to note that none of these conditions is within the control of the student. Each condition is alterable through improved policy and practice, and suggests important targets for intervention. Thus, having indicators of these seven critical conditions can provide us guidance for intervention and allow us to track important trends in students' college access.

  Few of these critical conditions are currently measured by the state's public data systems. As a result, educational stakeholders and legislators have no way of knowing whether or not the conditions are present in California schools or the extent to which their absence

underlies disparities in educational outcomes like those evidenced by the COR. However, to accompany the COR maps, ACCORD also released data tables that would allow comparisons among a high schools' COR and the following indicators of school conditions:

College-Going School Culture

- **SAT Participation:** Because of the test's central role as a gatekeeper for four-year college entry, can be considered an indicator of a college-going school culture. When school personnel and academic structures orient students toward college, the SAT participation rate should be high. The rate reported here is calculated as the number of twelfth graders sitting for the exam in 1999-2000 as a percentage of the ninth grade cohort four years earlier. College Board and California Basic Educational Data System (CBEDS) data are used to construct this indicator.

- **PSAT Participation:** Like SAT participation, PSAT participation is an indicator of a college-going school culture. The rate reported here is also calculated as a percentage of ninth graders four years earlier, but represents the number of students in the class of 2000 who sat for the PSAT before taking the SAT as seniors. CBEDS and College Board data are used to construct this indicator.

Rigorous Academic Curriculum

- **The Advanced Math Rate:** is an indicator of rigorous academic curriculum. Specifically, it is the rate (from CBEDS) at which students in each district were enrolled in advanced math courses in 1999-2000 in grades 9-12. Mathematics course-taking is among the strongest correlates of college-going.

Qualified Teachers

- **The Uncertified Teacher Rate:** a teacher quality indicator, is the likelihood that a student will encounter an uncertified teacher in any given class. If 10 percent of the teachers at a school are uncertified, the Uncertified Teacher Rate is 10 percent for all students at that school. Because it assumes that within a school all students are equally likely to be assigned to certified teachers, it is actually a conservative estimate for underrepresented groups of students. CBEDS data are used for this indicator.

- **The Certification Disparity Index:** reveals whether underrepresented students in a legislative district, on average, attend schools that employ higher or lower percentages of uncertified teachers than schools attended by White and Asian American students. This index is the percentage by which the Uncertified Teacher Rate for underrepresented students differs from that of others. In all but a handful of legislative districts (where the index is a negative number), underrepresented students are more likely than others to be taught by uncertified teachers. With a Disparity Index of 25, underrepresented students would be 25 percent more likely than others to have an uncertified teacher.

Returning to Senate District 21, the following table of indicators shows how the districts' schools measured in 2000 on the other set of indicators:

Table 1. Senate District 21 Indicators of Critical School Conditions

Senate District	Adv Math Takers (%)	SAT Takers (%)	PSAT Takers (%)	Uncertified Teachers Rate (%)	Certification Disparity Index*
21	5.1	16	11	25	23

Because these conditions are predictive of college attendance, the degree to which they are available to all students in California schools will tell us a great deal about educational equity. Any effort to provide fair and equal access to the state's institutions of higher education must rely in part on a system of tracking these critical school resources and assessing their equitable distribution.

Piloting Leading Indicators

The development of a full set of opportunity indicators is hampered by a lack of statewide data that permit us to place outcome indicators in the context of more than a fraction of the critical conditions and opportunities that affect these outcomes. As a result, we have no way of understanding whether or not they are present in California schools or the extent to which their absence underlies the outcomes reported in the COR. The state also lacks longitudinal data on students that would allow us to measure students' progress through critical conditions and assess the impact of interventions and program improvements that student's experience.

To specify how such indicators could be constructed if data were available, ACCORD administered a survey to a random sample of 3,000 18-year-olds who had just graduated from California public high schools. We designed the survey items to elicit information both about the conditions and about the young people themselves. Each of the respondents was asked a series of question about each of the critical conditions for college-going. We used the survey to construct composite indicators (using cluster and factor analysis) that allow us to report the extent to which conditions the literature tells us are related to college-going are present in the experiences of California high school students; and explore whether or not the presence or absence of these conditions can help explain differential college preparation and admission to four-year colleges. The result should be a set of pilot indicators that could be adopted by the state to inform and monitor its efforts to make college access more equitable.

Three Indicators of a College-Going School Culture

In what follows, we use one of the conditions, "College-Going School Culture," as an example to show how student survey data can produce meaningful and useful indicators school characteristics that are linked to rates of college admission. A school with a strong College-Going Culture is one in which college is viewed by students and school adults as an expected step in the normative educational pathway. Adults encourage students to strive and persist, and

high expectations are coupled with vital help and information about college. Theorists have long suggested that students in such climates are likely to realize the high goals for educational attainment that are typical of most adolescents.

In order to measure this particularly complex construct, we asked students an extensive battery of questions. Factor analysis revealed that the items fell into three particularly important categories: Information/Assistance; High Expectations; or Steering Away from Four-Year College. Below we provide a sampling of the items that make up each of these composite indicators of a College-Going School Culture.

Information/Assistance

- How many times did you talk to an adult at your school about how to choose the right college?
- How many times did you use the college-planning center at your high school?
- Did your school offer counseling regarding courses that would prepare you for a four-year college?
- Did your school offer assistance with filling out college applications?

High Expectations

- Did your teachers have high expectations of you?
- How much did your teachers encourage you to go to college?
- Which students were encouraged to take the SAT or the ACT?
- Did anyone at your high school encourage you to go to a four-year college?

Steering Away from Four-Year College

- Did anyone at your high school encourage you to go to a community college?
- How much did your teacher encourage you to go to a trade or vocational school after high school?
- How much did your teacher encourage you to get a job after high school?

The items that load most highly on each of these dimensions appear in Table 2 below, with factor loadings.

Table 2: College-Going Culture Factor Structure

Survey Item	1	2	3
Q.9. How many times did you talk to an adult at your school about how to chose the right college?	0.66		
Q.9.How many times did you talk to an adult at your school about how to get into college?	0.64		
Q.43. How many times did you use the college-planning center at your high school?	0.58		
Q.42. Did your school offer counseling regarding courses that would prepare you for a 4-year college?	0.58		
Q.9. How many times did you talk to an adult at your school about the classes or teachers you should take?	0.56		
Q.42. Did your school offer assistance with filling out college applications?	0.54		
Q.29. Did your counselor encourage you to take college prep?	0.45		
Q.23.Did you learn from a counselor about college?	0.45		
Q.8. Did a counselor or teacher explain to you the classes require to attend a four-year California public university?	0.44		
Q.48. Did your high school offer workshops on college admissions test preparation?	0.30		
Q.38. Did your teacher have high expectations of you?		0.59	
Q.38. How much did your teacher encourage you to go to college?		0.54	
Q.5. Which students were encouraged to take the SAT or the ACT?		0.49	
Q.37. How often would you say you had substitute teachers in your English, science, and math classes?		0.48	
Q.25. Do classes a student takes influences their chances of getting into college?		0.41	
Q.11. Did anyone at your high school encourage you to go to a four-year college?		0.34	
Q.10. Did anyone at your high school encourage you to go to a community college?			0.62
Q.38. How much did your teacher encourage you to go to a trade or vocational school after high school?			0.59
Q.38. How much did your teacher encourage you to get a job after high school?			0.55
Q.42. Did your school offer resources regarding information about community colleges?	0.35		0.45
Extraction Method: Principal Component Analysis. *Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 7 iterations.*			

*FACTOR 1 can be described as an "Information/Assistance" factor; FACTOR 2 can be described as a "High Expectations" factor; FACTOR 3 Can be described as a "Steering" factor

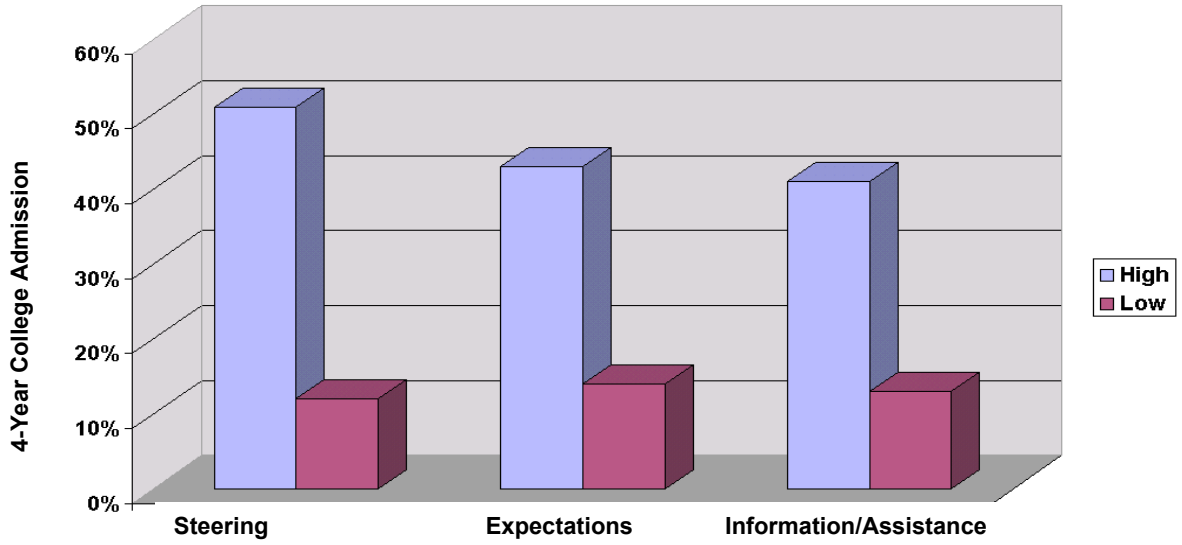
Our analysis reveals that various groups of students differ considerably in their access to these College-Going School Culture factors and in the relative impact of these factors on college going. In addition, the coexistence of these factors has a compound impact on students.

Does a College-Going School Culture actually affect admissions?

It is a natural question, before going any further, is to ask if a College-Going School Culture actually matters. It is often assumed to be important, but we cannot expect policy that aims to bolster it without first being able to measure it convincingly and prove that it matters—and how much, where, and for whom. Our analyses began by addressing the following questions: Does it predict college admission? Does it predict for both represented and underrepresented students? The question of whether, and how much, each of the factors matters—and the degree to which they contribute to the college-going equation independent of the other conditions in the schools is central to our work.

The survey data show that each of the dimensions—Steering, Expectations, and Information/Assistance, are highly predictive of admission to UC and CSU. On all three dimensions, students on the high end of the scale (those who receive good and plentiful information and assistance, those who experience high expectations at school, and those who were not steered away from college) have admission rates three or four times greater than those who do not. For those in the lowest quartile of each factor, the admission rates hover between 10 percent and 13 percent, whereas those at the other end of the spectrum enjoy admission rates over 40 percent (and in the case of Steering, 50 percent).[48]

Figure 6. Dimensions of College-Going Relate to College Admission



As important as it appears to be that students experience any one of the dimensions of a College-Going School Culture, the effect is compounded for students whose schools provide high levels across multiple dimensions. Figure 7 shows the average admissions rate for students scoring high on none of the dimensions of College-Going Culture is 6.9 percent, but outcomes improve dramatically for those who experience a rich College-Going Culture across multiple domains. In the most extreme example, those with high levels on all three factors had an average admissions rate of nearly 80 percent.

Figure 7. College Admission Rates for Students Experiencing 0, 1, 2, and 3 Dimensions of College-Going Culture

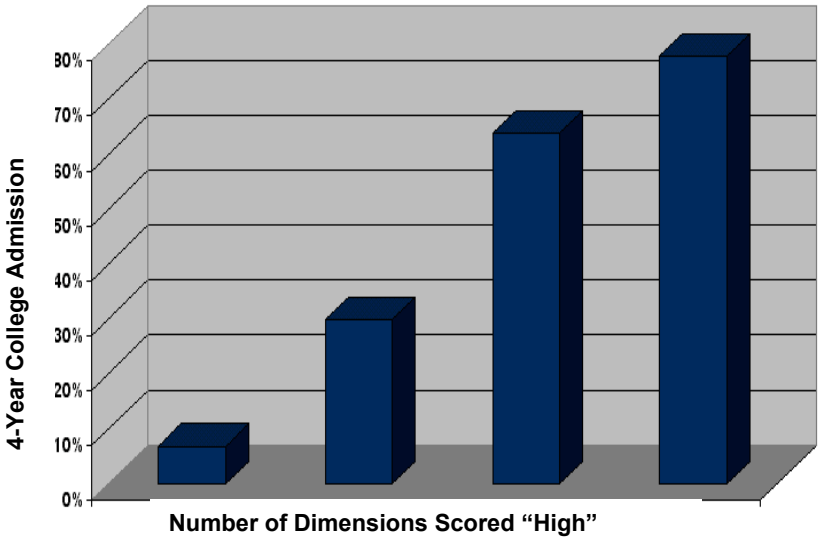


Figure 8 below shows that, although these College Going Culture factors are important for all groups of students, the relative importance of the dimensions varies considerably across groups. The bars represent the percentage of the variance in college-going explained by each dimension for each group. The figure shows that, across the board, Steering is quite influential. Expectations are also strongly predictive among African American students. For Latino students, the Information/Assistance factor is particularly important–a finding that can be understood in part by the greater needs along this dimension for a group with lower average levels of college-attendance by parents, lower levels of English language fluency, and less familiarity with the education system among a disproportionate number of recent immigrants.

Figure 8. College Going Culture Factors Do Not Affect All Groups in the Same Ways

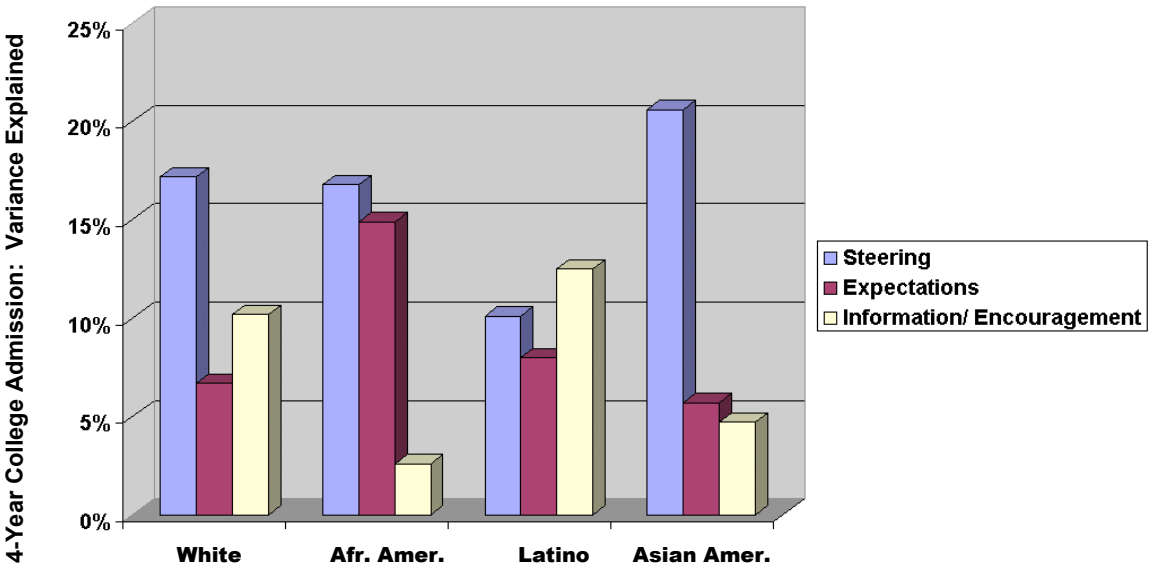
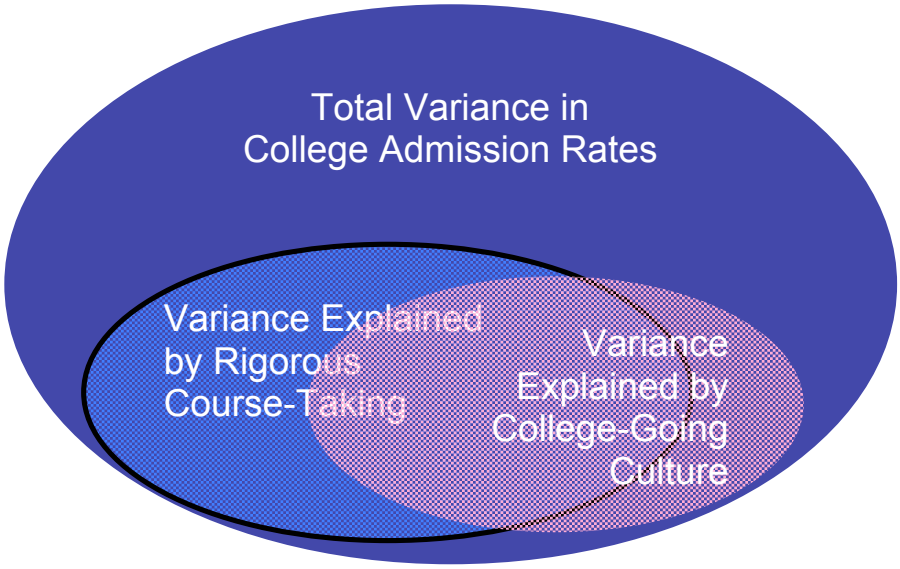


Figure 8 reveals that Steering is more severe and Expectations are significantly lower for Latino and African American students. This is an important finding because both of these factors contribute to ethnic differences in college-going rates in our sample. Steering away from four-year colleges is by far most commonly experienced by Latino students, but it is actually more predictive of college-going for other groups. Among Latinos, Information and Assistance is the strongest predictor (although, interestingly, it is not reported at lower rates than among White students. It *is* reported at rates substantially below those of Asian American students.) Perhaps the importance of Information and Assistance for Latino students can be explained in part by the high proportion of relatively new immigrants, second-language speakers, and the comparatively low levels of college information available to parents who are less likely to have attended college themselves. For such students, one would expect Information and Assistance to be of paramount importance.

In sum, our analyses show that California students who experience strong college-going supports in their high schools have UC and CSU admission rates that dwarf those of other students. (Over 60% of students with strong supports are admitted to UC or CSU, in contrast to fewer than 7% of those who report low levels of support.) As expected, the strongest predictor of college admissions is the degree to which students take necessary courses and exams. While both result, in part, from College-Going Culture, they are also influenced by a wide array of other conditions that affect preparation and academic choices. Importantly, our analyses show that these College-Going Culture factors predict college admission—over and above the obvious things such as taking the right courses.

The figure below shows the extent to which the effects on four-year college admissions of Rigorous Curriculum and College-Going Culture can be disentangled in our survey data. As it turns out, over 40 percent of the variance in admissions can be explained in a logistic regression model broadly by these two constructs. Roughly 19 percent can be understood uniquely in terms of Rigorous Curriculum. Another 10 percent can be explained in terms of College-Going Culture alone, and a significant 24 percent from a combination of the two that cannot be disentangled statistically. Whereas 10 percent can be thought of as the least that College-Going Culture contributes to the equation, much of this shared portion of the variance can also be attributed to College-Going Culture, given the logical assumption that course-taking patterns mediate much of the relationship between College-Going Culture and college admission.

Figure 9. The Contribution of College-Going Culture to UC and CSU Admissions

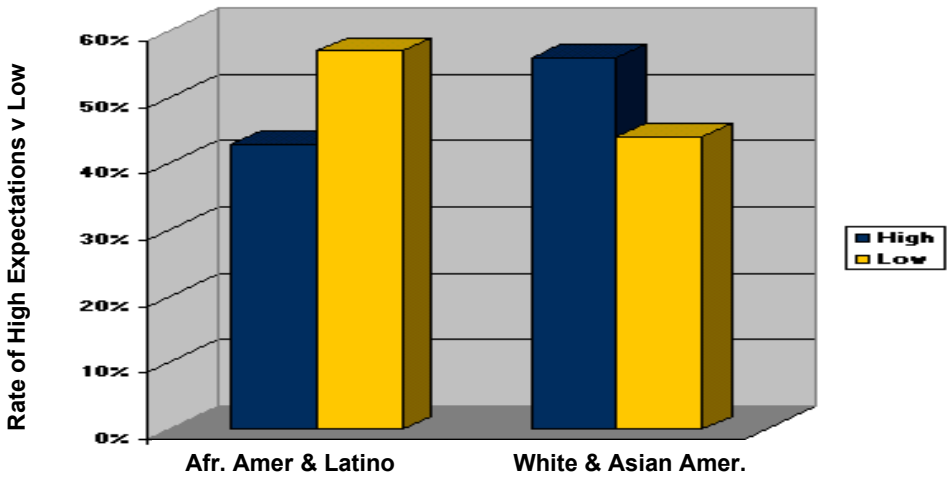


Importantly, these factors predict college-going for both represented and underrepresented students, although not always in the same ways.

Is a College-Going School Culture Available Equally?

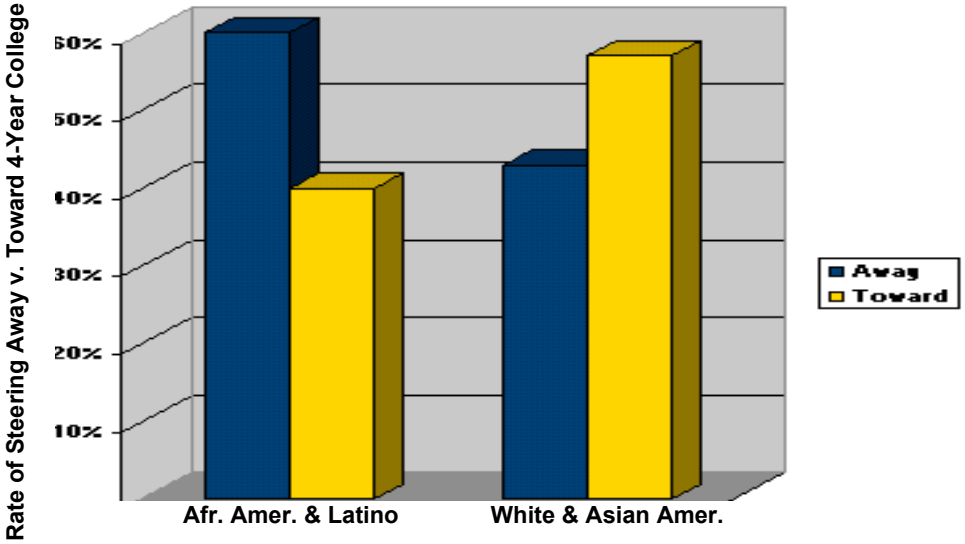
Returning to the question of whether California schools provide a comparable college going culture to all groups, the figures 10 and 11 suggest that they do not, at least in the case of Assistance and Steering. African American and Latino are more than 40 percent more likely to be in the lowest quartile of Expectations than in the highest.

Figure 10. African Americans and Latinos are Less Likely to Experience High Expectations



We see the same pattern on the Steering index, with underrepresented students 50 percent more likely to be steered away from college by school adults than to be steered toward UC or CSU.

Figure 11. African Americans and Latinos are More Likely to be Steered Away from Four-Year Colleges



Additionally, students from college-educated families report higher levels of college-going support at school. They are 2-3 times *more* likely to have information and assistance, and they are 2-3 times *less* likely to be "steered" away from four-year colleges. Compounding their school advantages, the survey found that these students also have more support outside of school: more private tutoring—more than 2 times as likely (32% to 14%); extra classes from a private school or company—almost 2 times as likely (9% to 5%); and access to private College Counselors to help with applications—almost 2 times (13% to 7%).

What Lies Ahead?

Over time, UC ACCORD's goal is to build an Indicator System that will paint a comprehensive portrait of the trajectories that various sub-groups of California students take through the K-12 system into college and the university. It will place students' accomplishments in the context of critical transitions from childhood to college and the schooling conditions described above.

California has recent experience showing that such indicators could actually prompt constructive action. Take the experience of Grant High School, one of the two schools displayed on the GIS map in figure 5, for example. The map shows significant disparities in the rates at which Grant High and neighboring North Hollywood High (schools serving very similar populations) produce college-ready graduates (7% versus 23%). Beneath these indicators is a story of the success of a concrete policy intervention that one might recommend in response to our College-Going Culture indicators. Grant High School has a program (Project College

Bound) designed specifically for the purpose of generating a stronger College-Going School Culture. Students of color are ushered towards college eligibility from the time they enter the ninth grade. They are given clear information about the requirements and are followed closely by college counselors. Students and their parents are notified if they fail to register for important courses or if their performance puts them at risk for falling off the college-prep trajectory. In the first cohort of the program, the number of African Americans in the district who were admitted to the University of California more than doubled. This is surely an intervention that indicators of a College-Going Culture could both prompt and track.

What we've described in this paper is just the tip of the iceberg of a comprehensive project to develop a set of California Opportunity Indicators. However, we believe that our work so far demonstrates its promise. The COR indicator has been widely received as compelling and useful, even though it only represents a new way to array simple, pre-existing state data. Our College-Going Culture indicators make clear that constructing useful indicators is possible, feasible, and useful. A few questions added to the annual survey teachers by the California Basic Educational System could provide highly useful data for the construction of indicators of conditions and opportunities in California schools. So, too, could a questionnaire for high school students attached to California's High School Exit Exam.

Neither collecting data nor constructing and reporting indicators will guarantee equity. But surely, both can clarify problems, identify points of intervention, and ultimately prompt action and track progress. Good indicators can inform and move a serious and badly needed public discussion and action to advance California's efforts to achieve diversity and equity in college access for all. UC ACCORD's indicators work is meant to prompt just such discussion and action.

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[1] The fact that a considerable number of undergraduates do not declare themselves as one of these common racial categories doesn't diminish the disparities. Analyses by Saul Geiser show that most of the UC students who decline to state are either White or Asian—groups not under represented. (Saul Geiser, personal communication, 2003).

[2] UC ACCORD, a multi-campus research institute housed at UCLA, is the research arm of this outreach strategy. Established in 2001, ACCORD's charge is to engage UC faculty in research that could assist the university and the state better understand and alter the State's glaring racial disparities in access to higher education. ACCORD's goal is to produce research that is useful as policymakers, educators, and the public struggle to make college going in California more equitable.

[3] In addition to the authors, ACCORD's indicators team includes Daniel Solorzano, Walter Allen, and John Rogers.

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[5] Note that we use the term "underrepresented" students to refer to African American, Latino, and American Indian students, since these groups are underrepresented in the group of students admitted each year to the University of California.

[6] Number includes all ninth graders, including students who were retained.

[7] In a few cases, the graduating class was slightly larger than the ninth grade class. In those cases, we report that for every 100 ninth graders there were 100 graduates.

[8] These are courses, known as the "A-G" subject requirements which include: 2 years of history/social science, 4 years of English, 3 years of mathematics, 2 years of laboratory science, 2 years of foreign language, and 2 years of college-preparatory electives.

[9] Note that California has a two-tiered system of public 4-year universities. Both systems require successful

completion of the "A-G" requirements. Eligibility for the more competitive University of California system requires higher grades in the courses as well as qualifying scores on the SAT I and II.

[10]The data come from the California Basic Educational Data System. Since the state does not collect data in a way that allows us to follow individual students over time, some portion of the drop in the numbers between ninth grade and graduation may reflect students who move, as well as those who do not graduate. Such student mobility may affect an individual school's COR, but the statewide trends are conservative estimates, since California had a net increase in the number of high school age underrepresented students over the course of the study. One important aspect of ACCORD's work is to improve the breadth and quality of the state's data about its schools and colleges.

[11] For this analysis we calculate CORs only for comprehensive public high schools that have college preparation as one of their goals. Thus, small alternative schools that do no offer college preparation are not included.

[12]Contrary to what one might expect, a larger bar does not portray a "better" score on the COR.

[13]While the importance of these conditions is supported by a large number of studies with consistent findings across locations, populations, educational outcomes, etc., we provide only illustrative examples here.

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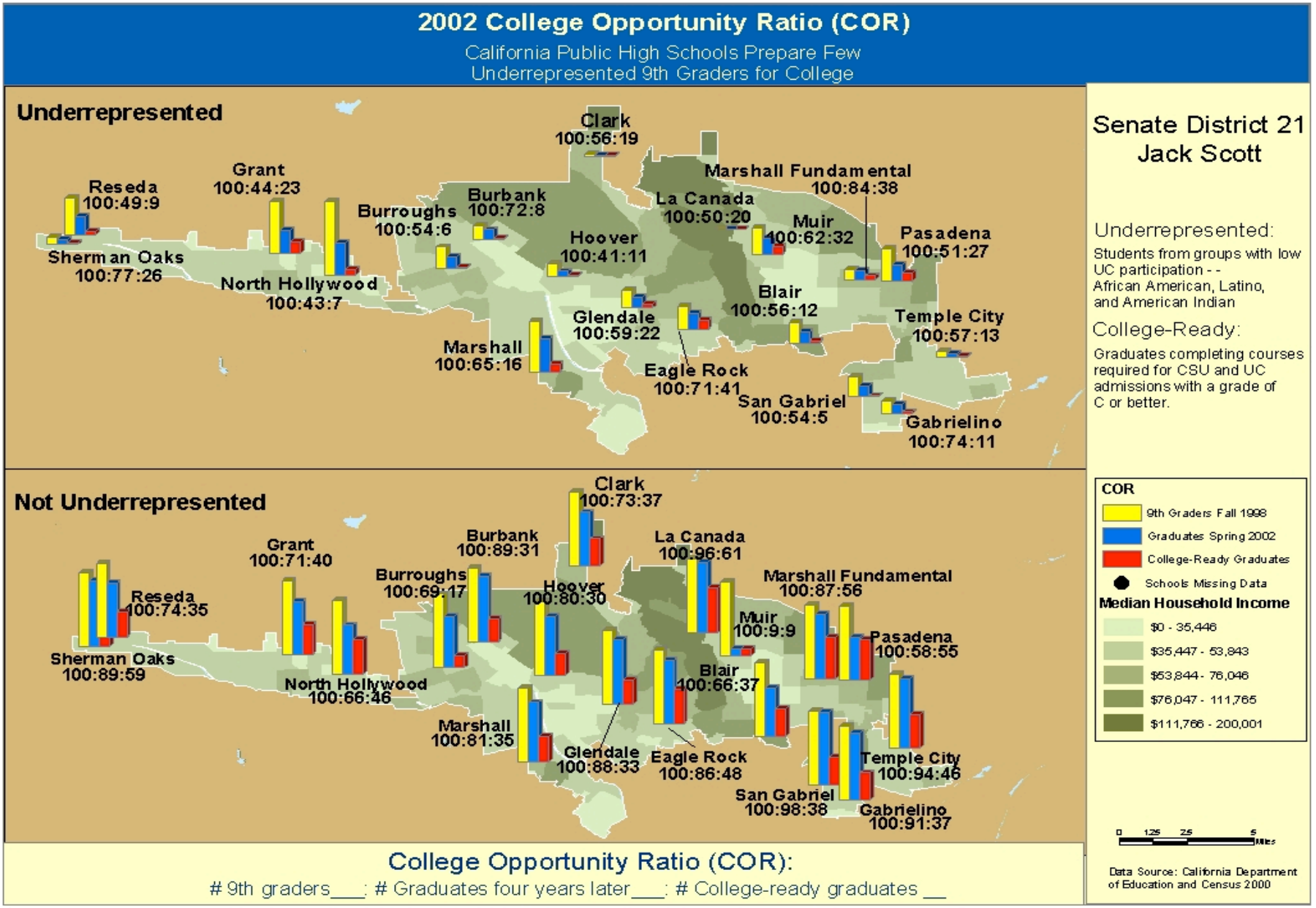
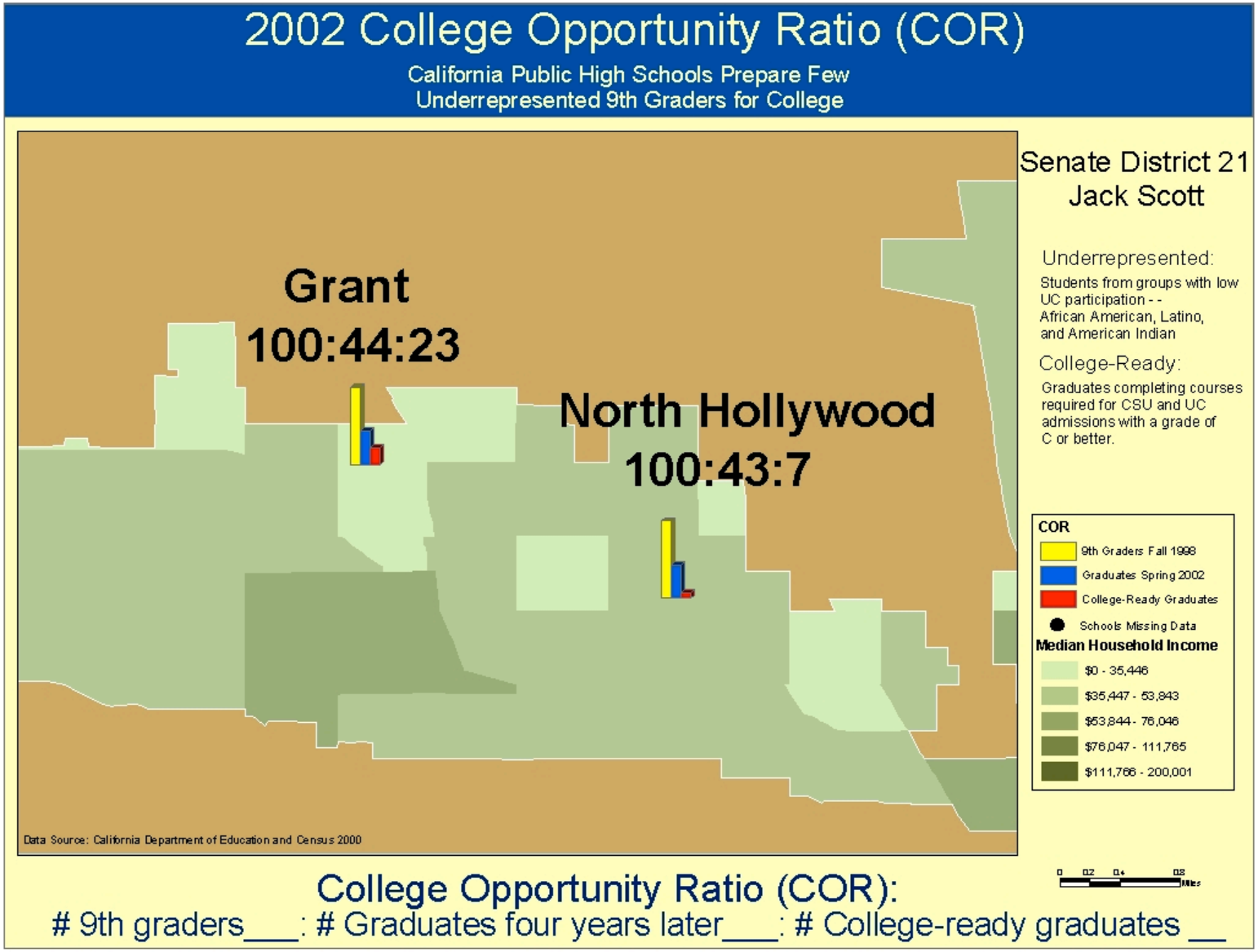

2002 College Opportunity Ratio (COR)
California Public High Schools Prepare Few Underrepresented 9th Graders for College
Underrepresented
Clark 100:56:19
Marshall Fundamental 100:84:38
Grant 100:44:23
Reseda 100:49:9
Burroughs 100:54:6
Burbank 100:72:8
La Canada 100:50:20
Muir 100:62:32
Pasadena 100:51:27
Hoover 100:41:11
Sherman Oaks 100:77:26
North Hollywood 100:43:7
Blair 100:56:12
Glendale 100:59:22
Temple City 100:57:13
Marshall 100:65:16
Eagle Rock 100:71:41
San Gabriel 100:54:5
Gabrielino 100:74:11
Not Underrepresented
Clark 100:73:37
Burbank 100:89:31
La Canada 100:96:61
Grant 100:71:40
Burroughs 100:69:17
Marshall Fundamental 100:87:56
Hoover 100:80:30
Reseda 100:74:35
Muir 100:9:9
Pasadena 100:58:55
Sherman Oaks 100:89:59
Blair 100:66:37
North Hollywood 100:66:46
Marshall 100:81:35
Glendale 100:88:33
Eagle Rock 100:86:48
Temple City 100:94:46
San Gabriel 100:98:38
Gabrielino 100:91:37
College Opportunity Ratio (COR):
9th graders___: # Graduates four years later___: # College-ready graduates __
Senate District 21
Jack Scott
Underrepresented:
Students from groups with low UC participation - - African American, Latino, and American Indian
College-Ready:
Graduates completing courses required for CSU and UC admissions with a grade of C or better.
COR
9th Graders Fall 1998
Graduates Spring 2002
College-Ready Graduates
Schools Missing Data
Median Household Income
$0 - 35,446
$35,447 - 53,843
$53,844 - 76,046
$76,047 - 111,765
$111,766 - 200,001
0 12.5 25 50 Miles
Data Source: California Department of Education and Census 2000


2002 College Opportunity Ratio (COR)
California Public High Schools Prepare Few Underrepresented 9th Graders for College
Grant
100:44:23
North Hollywood
100:43:7
Senate District 21
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Research to Make a Difference

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