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Improving the Transition from High School to Postsecondary Education

Policy Analysis for California Education
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Improving the Transition from High School to Postsecondary Education

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Preface

PACE presents three working papers on the inadequacies and difficulties of successful transition from high school to college. These papers are derived from The Bridge Project, a six-state study of K–16 issues. Readers of these papers may want to read the final Bridge Report, *Betraying the College Dream*, and look at other six-state comparative studies on the Bridge website (<http://www.stanford.edu/group/bridgeproject/>). The website will help locate California in the national K–16 context.

These three papers do not attempt to cover all aspects of K–16 and transition issues. Consequently, the policy implications at the end are based solely on these studies. While the media has focused a disproportionate amount of its attention on the highly selective UC system, these studies provide fresh perspectives on the issues of college preparation, transition, and success for the vast majority of California students who attend the broad-access institutions—the California State University system (CSU) and community colleges.

Anthony Lising Antonio and Samuel H. Bersola provide an overview of what California students and parents know about college, and when they know it. The survey results are alarming and reveal widespread ignorance or misinformation about college requirements, readiness, and needed actions to be successful at college. For example, at CSU and community colleges, the placement exam given to entering first-year students is a crucial education standard, but students know little about the placement process or the content of the exam. Students incorrectly think their high school graduation standards are equivalent to college placement standards.

Andrea Bueschel summarizes case studies of the Los Rios Community College District (by K.C. Boatsman) and some of its feeder high schools. She analyzes how and why prospective high school students receive vague and conflicting signals about academic college readiness. Moreover, she provides some significant contextual data on California students' transition from high school to community college.

Michael Kirst provides a concrete example of how to improve K–16 transition and placement and send clearer academic standards signals to high school students. He describes how CSU and the California State Board of Education concluded negotiations in 2003 that merged CSU placement standards into the existing statewide California standards tests (CST) given to all students in Grades 1-11. CSU set the minimum test scores that high school juniors would need to reach, and agreed to accept the CST in lieu of its own placement exam for those students. Low-scoring high school students will receive specific recommendations to avoid remediation in college in summer 2004, and can use their senior year for intensive preparation to meet CSU placement standards.

Policy implications from these three papers conclude this publication. Some of these recommendations have low or no cost requirements.

Section 1

What do California Students and Parents Know About College?

*by Anthony Lising Antonio
and Samuel H. Bersola*

In this report we explore the aspirations California students have for postsecondary education and their knowledge about college costs, placement exam policies, and admission policies. Such an examination is important because students whose aspirations align poorly with their college knowledge are likely to be unprepared for the challenges of college.

For instance, such students may not have taken sufficiently rigorous courses in high school. They also may have acquired inaccurate or inadequate information which may lead them to make poor college choices: they may end up selecting an insufficiently challenging school, a school they cannot afford, or a school without a strong academic program in the student's primary interest.

Generally we found that students have high postsecondary aspirations. Almost half desire to attend college at one of the University of California campuses, the state's most selective university. Despite these high aspirations, students also demonstrated rather poor knowledge of college costs and policies, knowledge that may be important for making successful transitions to college. Tuition was consistently overestimated, admission criteria were misunderstood, and students' knowledge of academic placement appeared to be based more on guesswork than fact.

Methodology and Sample

The Sacramento Metropolitan Area and surrounding cities was chosen as the target population for this study. Within this geographic area, we chose two high schools in each of three area school districts at which to collect data. Our aim was to choose schools that were located near two public, four-year institutions—the University of California at Davis and California State University, Sacramento. This was to ensure that our sample of students would view the two universities as their local UC and CSU options, and therefore would likely seek out information on those institutions' policies and practices.

Schools and districts were selected with regard to the following criteria: racial diversity, UC eligibility rates, UC- and CSU-going rates, SAT-I scores, and STAR scores. In addition, we considered the percentage of students on free or reduced lunch as an indicator of school socioeconomic status. Within high schools and districts, we attempted to choose schools that would provide contrasts in socioeconomic status, racial composition, and academic performance, while also selecting schools that normally send a respectable number of students to the two local public universities. The characteristics of the six sampled high schools are summarized in Table 1.

TABLE 1. Selection Characteristics of Sampled High Schools.

District	High School*	% White	% Reduced/free lunch	% completed UC <i>a-f</i> reqs	% enrolled @ UCD (#)	% enrolled @ CSUS (#)	11 th gr Stanf. 9 (% >49 th pct)
1	Applewood	48	16	15	5 (na)	5 (na)	42V 46M
	Haverhill	44	17	22	7 (58)	6 (33)	33V 50M
2	Bridgeport	29	49	44	6 (50)	13 (79)	32V 45M
	Three Palms	51	14	36	7 (47)	12 (94)	50V 64M
3	Bellview	30	24	37	14(51)	4 (72)	44V 53M
	Center City	35	56	37	3 (46)	8 (83)	28V 44M

na: Data not available.

* School names are pseudonyms.

As Table 2 shows, we divided the six schools into three levels of performance (low, middle, and high) according to the combined verbal and math scores of eleventh graders on the 1997 Stanford-9 test. Sampled schools in Districts 2 and 3 each represented a low- and high-performing pair within the district. District 1 had only two comprehensive high schools, however, and these schools were average-performing within the Northern California context.

TABLE 2. School Performance Designations.

District	High School* Performance	Combined Math/Verbal SAT-9 Score	School
1	Applewood	88	Middle
	Haverhill	83	Middle
2	Bridgeport	77	Low
	Three Palms	114	High
3	Bellview	97	High
	Center City	72	Low

*School names are pseudonyms.

The two comprehensive high schools in District 1, Applewood and Haverhill, are good representatives of “middle-performing schools.” Academic performance indicators place the two high schools squarely in the middle of the State achievement levels and in the middle of their respective “similar school” cohorts.

About one-fifth or less of their graduates complete the A–F requirements for the University of California, and approximately one-fifth matriculate directly to a four-year college or university. About one-third of the students at each school take the SAT-I, and average verbal and math scores for each hovers around 500, the national average. Note that higher percentages of

graduates in the low-performing schools complete UC A-F requirements, which illustrates some of the limitations of these performance designations based upon test scores.

The two District 2 high schools included in the study only opened within the last decade, reflecting the area's rapid growth. Racial composition and socioeconomic status varied most in this district. According to the 1999 Stanford-9 results, Bridgeport was the lowest-performing among the five comprehensive high schools in this district while Three Palms was the highest-performing.

Teachers and administrators describe Three Palms as "college preparatory," which was clearly evident in the main office, which housed elaborate displays of impressive college matriculation statistics. Despite the fact that both schools in this high-performing district offer a wide array of Advanced Placement courses (approximately a dozen AP courses each), Three Palms students earn AP credits at a rate twice that of students at Bridgeport and students statewide.

District 3, an urban district in Northern California, is one of the largest in the state and has its share of urban challenges. For example, according to a district study, at the end of the 1998–99 school year nearly half of the 9th graders in the district did not acquire the units needed to advance to the 10th grade. Furthermore, on average, 9th graders in District 3 earned three grades of D or F during that academic year. Bellview High, which is located in an upper-middle-class residential neighborhood, is known for its rigorous academic program and high academic achievement, and is the district's highest-performing school.

In contrast, Center City High School is one of District 3's lowest-performing high schools. According to 1999 Stanford-9 results, just over 10% of the students at Center City were performing above grade level, compared to nearly half of the students at Bellview. Furthermore, only a quarter of the seniors at Center City met the UC A-F eligibility requirements, whereas over half of Bellview's seniors met these requirements.

"We targeted 9th and 11th graders who were likely to be interested in college (those in honors and college prep courses)."

Within each school, we selected a stratified sample of students and their parents for participation in our study. Our selection matrix was a 2x2 design (grade level x honors track) in which we targeted students in 9th grade, 11th grade, honors track, and non-honors (but "college-prep") track. In other words, we targeted 9th and 11th graders who were likely to be interested in college (those in honors and college prep courses) as opposed to those who were least likely to be interested (those in the basic-level courses).

At each high school this selection matrix resulted in a target sample of students in four English classrooms: one 9th grade college prep class, one 9th grade honors class, one 11th grade college prep class, and one 11th grade honors class. English classrooms were chosen to delineate students by grade level and academic track because, unlike mathematics courses, the classrooms were homogeneous with respect to grade level. Since each of the schools had no formal tracking of students, we took into account students' current English *and* math courses in our analyses, as described below in the findings section.

We surveyed students and their parents in the spring quarter of the 1998–1999 academic year using a questionnaire specifically designed for the study. Parents were asked to complete a 15-minute survey and an attached consent form. The parent survey collected data on family socioeconomic status, their knowledge of local college admission requirements, and their specific behaviors associated with obtaining information about college.

Returning students signed consent forms and were given approximately 30 minutes during class to complete a 27-question survey. The student survey was designed specifically for this study and gathered data on student behaviors, aspirations, and beliefs related to going to college. The final sample consisted of 451 students and 433 parents. There were 418 cases in which complete student and parent survey data was obtained.

Slightly more young women (63%) participated in our survey than young men. As teachers explained, honors courses are predominantly female; thus, our sample was skewed in this direction. In addition, more 11th graders (53%) than 9th graders (47%) participated. In terms of socioeconomic status (SES), students tended to fall in our mid-SES and high-SES categories, with only 21% falling into the bottom third of our SES scale.¹

The sample was racially and ethnically diverse. Students of Asian descent comprised almost 40% of our sample, yet student demographic information for the two counties in which our six schools reside indicates that only 17% of the high school population is of Asian descent. This oversampling of Asian-American students is likely due to the fact that our sample included college preparatory and honors students only, and Asian-American students tended to be overrepresented in these tracks.

In contrast, African-American and Latino students were undersampled (11% African-Americans in our sample vs. roughly 15% overall within the two counties, and 10% Latinos in our sample vs. roughly 16% within the two counties). Whites made up 27% of the sample.

Focus group interviews were also conducted with 8–10 students from each sampled classroom. Although this report focuses on the analysis of survey data, qualitative data from interviews are also provided for additional explanation of findings.

FINDINGS

In our analysis we look at student aspirations for postsecondary education as well as student “college knowledge”² in terms of their understanding of tuition costs, curricular requirements, placement tests, and admission selection criteria. Student aspiration and college knowledge are analyzed for differences by grade (9th vs. 11th), race, socioeconomic status (SES), school

¹ Socioeconomic status (SES) was measured by a composite of two variables, maximum parental education and family income, both taken from the parent survey. Maximum parental education was scaled from 1 (less than high school) to 7 (graduate/professional degree) and was taken as the higher level of attainment among the mother and father. Family income was scored 1 (below \$15,000 a year) to 12 (over \$100,000 a year). SES was computed as the sum of the two measures. For cross-tabular analyses, we divided these SES values into three major categories: low-SES (2 to 7), middle-SES (8 to 13), and high-SES (14 to 19). The sample tended toward the mid- and high-SES categories (38.5% and 40.1%, respectively). Only 71 students (21.4%) were categorized in the low-SES category.

² McDonough, P.M. (1994). Buying and selling higher education: The social construction of the college applicant. *Journal of Higher Education*, 65, 427-446.

performance, academic track, and use of key agents. In a final section, we present a brief analysis of parents' college knowledge based on the data collected from parent surveys.

Student Aspirations for Postsecondary Institutions

In our survey we asked students to state their interest in attending ten types of postsecondary institutions. Students were allowed to check as many institutions as they wished.

“Juniors may have greater knowledge than freshmen of their chances for admission across institutions, and include their local community college as a ‘safety school.’”

Aspirations by Grade

As Table 3 shows, the juniors in our sample expressed greater interest than the freshmen in attending three institutions: a local community college, UC campuses other than UC Davis (UCD), and CSU campuses other than CSU Sacramento (CSUS). The largest difference by grade was associated with interest in a community college. Eleventh graders are nearly twice as likely to include the two-year institution on their list of postsecondary options. One explanation for this difference in postsecondary aspiration is that juniors may have greater knowledge in terms of institutional variety (schools further from home) and of their objective chances for admission across institutions, thereby including their local community college as a “safety school.”

TABLE 3. Postsecondary Aspirations by Grade.

Institution	Percent Among			t-test p-value
	9th (n=214)	11th (n=237)	Total (n=451)	
Local community college	19.6	39.2	29.9	.000
UC Davis	51.4	45.1	48.1	.185
Other UC campus	42.5	52.3	47.7	.038
CSU Sacramento	27.6	36.2	26.8	.737
Other CSU campus	19.2	27.4	23.5	.039

Note: Subgroup sample sizes may differ from total due to missing data.

Aspirations by Race

Small cell sizes in the cross tabulations make it difficult to render strong inferences with respect to racial differences. However, we feel it is instructive to note a few interesting trends in the analyses by race. In Table 4, we find that white, Latino, and multiracial students were the most likely to include their local community college on their postsecondary options list.

The students in all three Asian-American subcategories, along with multiracial students, showed a greater interest in UCD than the other racial groups. Chinese-American students showed by far the greatest interest in other UC campuses. Furthermore, Southeast Asians showed the most interest in CSUS. Finally, African-American students were least interested in other CSU campuses while white students were the most interested. In fact, the interest in other CSU campuses among African-Americans was less than one-third that of white students.

TABLE 4. Postsecondary Aspirations by Race.

Institution Aspired (%)	Race							Total (n=450)
	African- Am. (n=48)	White (n=120)	Latino Latina (n=44)	Chinese- Am. (n=54)	SE Asian (n=52)	Other Asian (n=59)	Multi- racial (n=69)	
Local community college	25.0	34.2	34.1	25.9	21.2	28.8	36.2	30.0
UC Davis	33.3	40.8	45.5	57.4	53.8	57.6	53.6	48.0
Other UC campus	29.2	54.2	38.6	70.4	30.8	49.2	49.3	47.6
CSU Sacramento	27.1	22.5	27.3	22.2	36.5	32.2	23.2	26.4
Other CSU campus	10.4	35.0	22.7	16.7	17.3	16.9	30.4	23.6

Note: Subgroup sample sizes may differ from total due to missing data.

Aspirations by SES

Aspiration trends with SES are shown in Table 5. One expected trend was confirmed: high-SES students showed greater interest in UCD (61%) than low-SES (45%) and middle-SES students (48%). Similarly, and perhaps more telling, is the fact that interest in other UC campuses increased with SES, with high-SES students aspiring to these schools at twice the rate of their low-SES counterparts.

The opposite is true, however, for interest in the less selective CSUS. Among low-SES students, 40% indicated interest compared to only 23% of high-SES students. Finally, mid-SES students indicated the greatest interest in their local community college (35%), which was significantly greater than the aspirations among students from high-SES families.

TABLE 5. Postsecondary Aspirations by SES.

Institution Aspired (%)	SES			t-tests (p-values)		
	Low-SES (n=62)	Mid-SES (n=121)	Hi-SES (n=130)	lo-mid	mid-hi	lo-hi
Local community college	32.3	34.7	21.5	.728	.021	.124
UC Davis	45.2	47.9	60.8	.721	.042	.043
Other UC campus	32.3	49.6	66.2	.023	.007	.000
CSU Sacramento	40.3	28.9	23.1	.106	.305	.014
Other CSU campus	22.6	24.8	28.5	.740	.513	.379

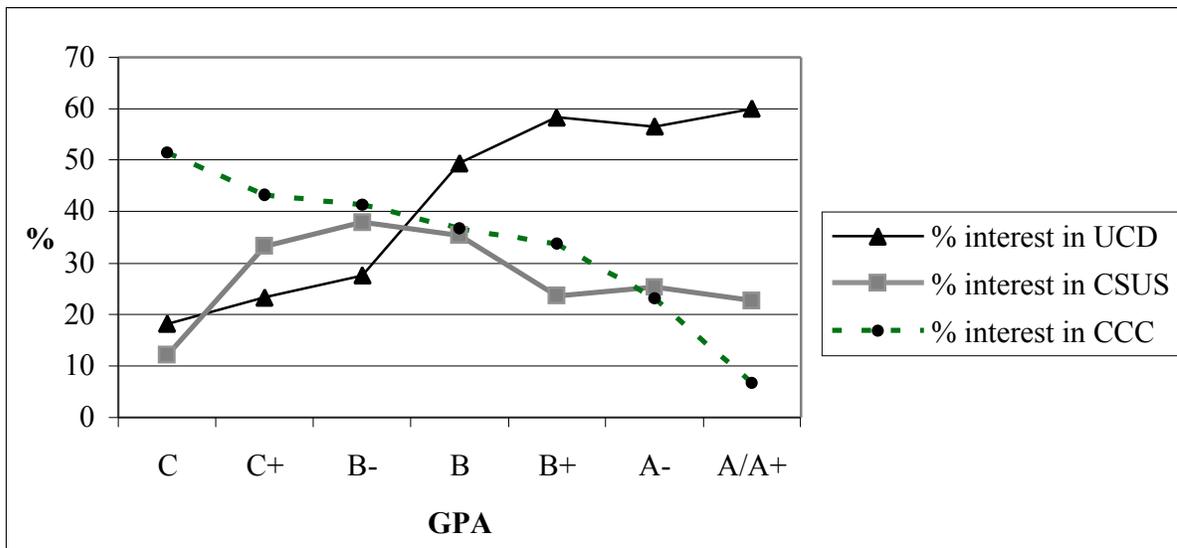
Note: Subgroup sample sizes may differ from total due to missing data.

Aspirations by Grade Point Average

Figure 6 shows students' interest in UC, CSU, and local community colleges as a function of students' self-reported grade point average (GPA). Interest in community colleges and GPA were inversely proportional: the stronger the student's GPA, the less interested he/she was in attending a community college. Among the "C" students, 52% were interested in the community colleges, while only about 7% of the "A/A+" students were interested in these colleges.

Regarding interest in only the two four-year schools, students in our focus groups consistently reported that one needed a higher GPA to gain admission to UCD than to CSUS. On the surveys, interest in both campuses increased with GPA from C to B-. Within this grade range, interest in CSUS was generally greater than interest in UC. However, for students with a GPA of B or better, interest in UCD was consistently greater than interest in CSUS, and interest in CSU decreased with GPA while interest in UC increased.

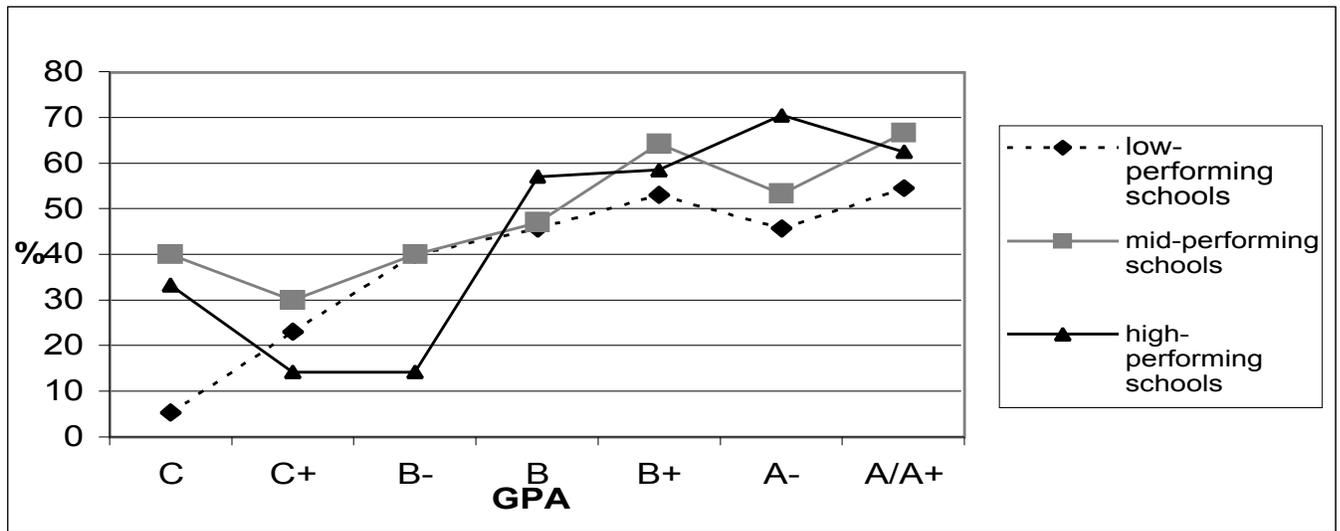
FIGURE 6: Interest in UCD, Sac State, and Community Colleges
(9th & 11th grades)



These trends may indicate students' awareness of UC's eligibility index, which sets the lower boundary for eligibility at a 2.8 grade point average (B-). In other words, if the eligibility requirements that the UC system signals to students are strong, students with at least a B average should know that they are UC-eligible and therefore aspire for this more selective system.

These trends are generally consistent even when comparing students' aspirations across school performance. Figure 7 shows interest in UCD by school performance and self-reported GPA. However, interest in UCD for students with C+ and B- averages was markedly lower in the high-performing schools, and the jump in interest at the "B" level is greatest in those schools as well. This difference suggests that the students in high-performing schools have better information about UCD requirements and are more realistic about their college aspirations.

FIGURE 7: Interest in UC Davis by School Performance



Aspirations by School Performance

Interest in the UC campuses (Davis and other UC campuses) was significantly greater for students in high- and middle-performing schools than in low-performing schools. Only about 37% of students in low-performing schools aspired to UC campuses other than Davis, compared to about 54% among students in higher-performing schools. In other words, students in the higher-performing schools appear to be more “mobile” in their aspirations for more selective institutions.

Interestingly, while there was no significant difference in interest in CSUS by school performance, there were significant differences in interest in the other CSU campuses. In this case, the more “mobile” students are those at the middle-performing schools, who were twice as likely than were students at the low- or high-performing schools to indicate interest in other CSU campuses (37% vs. ~18%).

Aspirations by Academic Track

We divided students into three academic categories or tracks, depending on the level of their current math and English courses: 1) non-honors (neither math nor English honors), 2) single-honors (either math or English honors), and 3) dual-honors (both math and English honors). Our analysis confirmed some expected trends. First, interest in a local community college decreased among students in higher-level academic tracks. Second, dual-honors students indicated a greater interest in the UC campuses than did non-honors students. Third, single- and dual-honors students indicated a greater interest in other UC campuses than did non-honors students.

The contrasts are stark. Compared to non-honors students, dual-honors students are 59% less likely to aspire to a community college (18% vs. 44%), 51% more likely to aspire to UCD (59% vs. 39%), and nearly one-and-a-half times more likely to aspire to a UC campus other than UCD (64% vs. 26%). Like those in high-performing schools, higher-track students appear to be more mobile and selective in their postsecondary aspirations.

Aspirations by Use of Key Agent

Use of a key agent is defined as speaking at least once to a parent, teacher, counselor, or higher education outreach officer about college admission requirements. As shown in Table 8, a greater percentage of students spoke to their teachers than to their counselors. Juniors had significantly greater contact than freshmen with their teachers, counselors, and college representatives.

The greatest difference between freshmen and juniors is that less than half of the freshmen had spoken to a counselor about college admission, whereas over three-fourths of the juniors had done so. Although one cannot conclude that discussions with parents net the same quality of information likely available from educators, parents remain as the primary information agent utilized by students.

TABLE 8. Use of Key Agents by Grade.

Key Agent	Percent talking about admission at least once			t-test p-value
	9th (n=214)	11th (n=237)	Total (n=451)	
Parents	91.6	92.4	92.0	.740
A teacher	72.3	84.9	79.0	.001
A counselor	44.9	76.9	61.7	.000
A college representative	29.6	39.2	34.7	.032

Note: Subgroup sample sizes may differ from total due to missing data.

Aspirations of students who reported use or non-use of the four key agents varied somewhat. Students who had spoken to a parent, teacher, or college representative at least once about college admission requirements were significantly more likely to show interest in the UC campuses. Teachers appear to be an important source of information for students; students who had spoken to a teacher were significantly more likely to indicate interest in attending a four-year institution.

“Teachers appear to be an important source of information for students.”

For example, among those who spoke to teachers about admission, over 50% aspired to UC campuses other than Davis, compared to just 35% among students who did not consult a teacher. An even greater difference is evident for aspirations to CSUS, in which interest nearly doubled among students who spoke to teachers (30% vs. 16%). Surprisingly, interest in each type of institution was not significantly different between those students who had and who had not spoken to a high school counselor.

To summarize briefly, in terms of postsecondary aspirations, students of Asian descent from higher SES families, in higher academic tracks, from higher-performing schools, and with higher

GPA displayed a greater aspiration for the most selective tier, the UC, and displayed greater geographic mobility in their aspirations as well.

Student Knowledge of College Tuition

Our survey asked students to provide a dollar amount for their “best guess of the cost of *tuition for one year*” at UC Davis, CSU Sacramento, and their local community college, excluding “the cost of books, housing, [and] other expenses.” For the 1998–99 academic year UCD charged an annual tuition of roughly \$4,000, CSUS charged roughly \$2,000, and the community colleges charged roughly \$300. Across the board, students tended to greatly overestimate these costs. The gross overestimation may be due to students’ interpreting the question as asking for *total* college costs, despite their explicit exclusion in the wording of the question. Overestimation of college costs, however, is not unusual.³

On average, our sample of students estimated annual tuition costs of nearly \$30,000 for UCD, nearly \$27,000 for CSUS, and just over \$10,000 for a local community college. Standard deviations for the estimates were also quite large, indicating a very poor sense of college tuition among students (\$77,400 for UCD, \$72,800 for CSUS, \$37,400 for a community college). When we informed students in the focus groups of the actual costs, students laughed in disbelief at what they perceived as great affordability. When asked why students overestimated these costs, one student in our focus groups remarked, “because people make such a big deal of it.” The following analysis looks more closely at students’ cost estimations.

Knowledge of Tuition by Grade

Table 9 displays the mean tuition estimates, as well as the proportions of students estimating tuition within two times or over five times the actual cost.

TABLE 9. Knowledge of Tuition by Grade.

Institution	Grade		Total (n=421)	t-test p-value
	9th (n=198)	11th (n=223)		
UC Davis				
Mean estimate	\$39,599	\$21,429	\$29,974	.016
% within twice the actual cost	41.1	39.7	40.4	.753
% more than five times the actual cost	22.9	16.5	19.5	.083
CSUS				
Mean estimate	\$39,376	\$15,170	\$26,548	.001
% within twice the actual cost	32.7	31.6	32.2	.810
% more than five times the actual cost	37.9	26.6	31.9	.010
Local Community College				
Mean estimate	\$15,147	\$5,744	\$10,151	.010
% within twice the actual cost	27.1	34.2	30.9	.105
% more than five times the actual cost	56.5	42.6	49.2	.003

Note: Subgroup sample sizes may differ from total due to missing data.

³ See, for example, Tornatzky, Cutler, & Lee, 2002, *College Knowledge: What Latino Parents Need to Know and Why They Don't Know It*. Claremont, CA: The Tomás Rivera Policy Institute.

Defining “gross overestimation” as guessing beyond five times the actual cost of tuition and “within target” as guessing within twice the actual cost, a greater percentage of students grossly overestimated the cost for community college than for the CSU and UC. On the other hand, a greater percentage of students (40%) were within target for UCD than the other two sectors. One explanation for the latter result is that the ranges for all three institutions were so high that the students were more likely to guess “within target” for the highest-priced institution (UC Davis) and more likely to “grossly overestimate” the lowest-priced institution (community college).

That 9th graders possess relatively less accurate information than their older peers concerning college access and entry is not surprising, and even somewhat expected, given the reality that college entrance is several years off for them. Therefore, in the subgroup analyses that follow for knowledge of tuition, admission policy, and placement policy, we only examine 11th graders.

Knowledge of Tuition by Race

Among our seven racial/ethnic categories, Southeast Asian 11th graders were the most likely to overestimate the three tuition costs (Table 10). While Latinos also overestimated the costs, they offered mean estimates that were closest to the actual values.

TABLE 10. Knowledge of Tuition by Race (11th Graders Only).

Institution	Race							Total (n=450)
	African- Am (n=48)	White (n=120)	Latino/a (n=44)	Chinese- Am (n=54)	SE Asian (n=52)	Other Asian (n=59)	Multi- racial (n=69)	
UC Davis								
Mean estimate	\$19,883	\$14,066	\$11,622	\$19,262	\$51,193	\$19,604	\$22,243	\$21,429
% w/in twice actual cost	31.6	43.3	43.5	41.4	34.5	27.6	48.6	39.6
% more than 5 times cost	15.8	11.9	13.0	24.1	27.6	17.2	10.8	16.6
CSUS								
Mean estimate	\$16,678	\$11,035	\$8,533	\$10,610	\$33,978	\$12,604	\$17,903	\$15,170
% w/in twice actual cost	26.3	34.3	39.1	44.8	24.1	17.2	32.4	31.5
% more than 5 times cost	36.8	36.9	17.4	17.2	44.8	24.1	21.6	26.8
Local Community College								
Mean estimate	\$8,467	\$4,073	\$1,397	\$4,133	\$15,817	\$4,532	\$3,862	\$5,744
% w/in twice actual cost	42.1	34.3	34.8	41.4	27.6	20.7	37.8	33.6
% more than 5 times cost	26.3	41.8	26.1	41.4	58.6	58.6	37.8	43.0

Note: Subgroup sample sizes may differ from total due to missing data.

Knowledge of Tuition by SES

Knowledge of tuition appears to increase with SES (Table 11). Low-SES students had mean estimates that were statistically greater than the mean estimates of high-SES students. As with the analyses of aspiration, the differences were stark. For low-SES students, the estimates for UCD and CSUS were roughly four times greater than the estimates among high-SES students. High-SES students were statistically more likely to guess within twice the actual costs of UCD

and CSUS than their middle-SES 11th-grade counterparts. For the local community college, the mean estimate for low-SES students was over six times greater than the mean estimates for high-SES students and four times greater than the mean estimates for middle-SES students.

TABLE 11. Knowledge of Tuition by SES (11th Graders Only).

Institution	SES			t-tests (p-values)		
	Low-SES (n=36)	Mid-SES (n=59)	Hi-SES (n=62)	lo-mid	mid-hi	lo-hi
UC Davis						
Mean estimate	\$47,391	\$16,521	\$12,095	.068	.751	.034
% within twice actual cost	38.9	25.9	50.8	.202	.005	.238
% more than 5 times cost	19.4	12.1	13.1	.358	.865	.431
CSUS						
Mean estimate	\$31,561	\$12,942	\$8,430	.054	.573	.016
% within twice actual cost	27.8	20.7	41.0	.464	.016	.169
% more than 5 times cost	36.1	27.6	19.7	.363	.329	.078
Local Community College						
Mean estimate	\$17,162	\$4,297	\$2,675	.031	.742	.014
% within twice actual cost	25.0	32.8	37.7	.440	.202	.569
% more than 5 times cost	61.1	39.7	36.1	.044	.690	.018

Note: Subgroup sample sizes may differ from total due to missing data.

Knowledge of Tuition by School Performance

In our analysis by school performance, an important and somewhat surprising finding is that students in the middle-performing schools generally provided tuition estimates that were closer to the actual values than those provided by students in high- and low-performing schools. The only significant difference in the means, however, was for community college tuition. The mean tuition estimate among students in low-performing schools (\$9021 per year) was over four times the mean for students in middle-performing schools (\$1939 per year). These students were also the most likely to overestimate grossly the cost of UCD and community college.

Similarly, students in the high-performing schools were generally most likely to fall in the “within target” range for tuition estimates. However, the only significant difference among our 11th graders was found for tuition estimates to CSUS, where 44% of students in high-performing schools were “within target” compared to only 19% among those in middle-performing schools.

Knowledge of Tuition by Academic Track

By academic track, non-honors 11th graders were more likely than their single- and dual-honors counterparts to overestimate tuition costs for the three institutions. For each postsecondary option, tuition estimates by non-honors students were at least twice those offered by single- and dual- honors students. Statistically significant differences were found only among CSUS estimates, however.

Knowledge of Tuition by Key Agent

Finally, our analysis suggests that key agents also influence students' knowledge of college tuition. Students who spoke to their parents about college admission were three times more likely to guess within twice the cost of CSUS and community college, compared to students who did not speak to their parents. Similarly, a majority (~70%) of students who had not spoken to their parents about college admission requirements grossly overestimated the cost of community college, compared to just 40% among students who had spoken to their parents.

Speaking with high school counselors also appears to improve students' knowledge of tuition, particularly with respect to CSUS. Overall, students who spoke to counselors were more likely to provide tuition estimates that were "within target" and not "grossly overestimated" for CSUS. This pattern does not hold for estimates of UCD's costs, however. Interestingly, students who spoke to their counselors were significantly more likely to grossly overestimate the cost of UCD than students who did not speak to their counselors. This finding may reflect poor counseling, or simply that students are confused by the information they receive from counselors.

"Although students understood the relative tuition costs among the three types of institutions, they greatly overestimated these costs."

In sum, although the trend in responses may indicate that students understood the *relative* tuition costs among the three types of institutions, students greatly overestimated these costs. Knowledge of tuition appears to increase with SES, and the community college cost estimate for students in low-performing schools was over four times that of their counterparts in middle-performing schools. Non-honors students were the most likely to overestimate the three tuition costs.

Students who had spoken to their parents about college admission were less likely to grossly overestimate and more likely to estimate within target. In focus groups, students spoke of college costs as an important factor in their ability to attend college. They expressed the need to receive more information on college costs. As one student put it, "That's what we should talk about more, too, in school—is how much it costs."

Student Knowledge of Curricular Requirements for College Admission

In our survey, we asked students to write down the number of years of study required for admission to UCD and CSUS in each of six subject areas (English, math, social science, laboratory science, foreign language, and visual/performing arts). For each university, we calculated the percentage of students who guessed the number of years correctly for each subject. Generally, knowledge of curricular requirements was extremely poor. Only 2.5% of all students in the sample knew the correct number of years for all subject areas required by UCD, and only a handful of students (<1%) knew the requirements for CSUS.

Because of these extremely low levels of knowledge, we also constructed a more liberal measure, the percentage of students who provided the correct number of years required for at

least half (three out of six) of the subject areas. In terms of the latter measure, students knew more about CSUS's subject requirements (about 50% got 3 or more correct) than UCD's requirements (only 29% got 3 or more correct). In focus groups, students consistently expressed that it was more difficult to gain admission to UCD (i.e., had more requirements) than to CSUS.

Students in focus groups expressed some confusion as to what was required for high school graduation, and what was required for admission to the CSU and UC. For these college-bound students, their expectations for college may have replaced the requirements their high school set for all students. Consequently, these students focused more on, and therefore displayed greater knowledge of, what it took to gain admission to college than what it took to merely graduate from high school. Only a few students were familiar with the term "A through F" and its meaning, but most students mentioned having seen a list of university requirements that their high school provided them.

Many students spoke of a booklet given to them by their school counselors during class scheduling that listed the UC and CSU course requirements. Most understood that the universities expected a few more years of study than their high school in certain subject areas, but only a few could pinpoint these differences. Students expressed some confusion, however, as to what the universities *required* and what the universities *recommended*.

Only a few students were able to articulate, for example, that their high school required only one year of foreign language whereas the universities required two, and that their high school required two years of math whereas the universities required three years of college-preparatory math (beyond basic math and pre-algebra).

Knowledge of Curricular Requirements by Grade

Table 12 shows the percentage of 9th and 11th graders that gave the correct number of years among six subjects required for admission to UCD and CSUS. Overall, the two subject requirements that students knew best were for English and a foreign language. The math requirement was the third most accurately reported requirement for UCD, but was less well-known among CSUS requirements than English, math, and visual/performing arts. Juniors generally had better knowledge of the curricular requirements than freshmen.

TABLE 12. Knowledge of Curricular Requirements by Grade.

Course Requirement	Grade		Total (n=451)	t-test p-value
	9th (n=214)	11th (n=237)		
UC Davis				
% Know English requirement (=4 yrs)	80.4	91.1	86.0	.001
% Know foreign lang req (=2 yrs)	47.2	53.6	50.6	.176
% Know math requirement (=3 yrs)	31.3	50.6	41.5	.000
% Know soc science req (= 2 yrs)	32.2	29.5	30.8	.536
% Know lab science req (=2 yrs)	22.0	34.6	28.6	.003
% Know visual/perf arts req (= 0 yrs)	2.8	2.5	2.7	.858
% Know 3 or more of 6 requirements	36.9	56.1	47.0	.000
CSU Sacramento				
% Know English requirement (=4 yrs)	69.6	80.2	75.2	.010
% Know foreign lang req (=2 yrs)	57.0	73.4	65.6	.000
% Know visual/perf arts req (= 1 yr)	46.1	51.9	49.2	.233
% Know math requirement (=3 yrs)	35.5	51.5	43.9	.001
% Know lab science req (=1 yr)	9.3	9.3	9.3	.982
% Know soc science req (= 1 yr)	11.2	7.2	9.1	.137
% Know 3 or more of 6	42.5	61.1	52.3	.000

Note: Subgroup sample sizes may differ from total due to missing data.

Table 12 also shows that knowledge of English requirements (over 75% correct) was much stronger than knowledge of mathematics requirements (under 50% correct). To explore how inaccurate students' estimates of the mathematics requirements were, we noted whether responses were underestimated or overestimated.

“Students tended to overestimate rather than underestimate the three-year math requirement for CSU and UC.”

The following table shows that, generally speaking, students tended to overestimate rather than underestimate the three-year math requirement. Nearly half of the students overestimated the number of years for math for UCD, and one third of the students overestimated the number of years for math for CSUS. Moreover, freshmen were more likely than juniors to overestimate the number of years needed for both campuses. In other words, students tended to assume that the English and math requirements were identical.

TABLE 13. Knowledge of Math Requirements by Grade.

Knowledge of Math Requirement	Grade		Total (n=444)	t-test p-value
	9th (n=208)	11th (n=236)		
UC Davis				
% Underestimate (< 3 years)	12.1	7.3	9.5	.088
% Correct (=3 years Math)	32.5	51.7	42.7	.000
% Overestimate (> 3 years)	55.3	41.0	47.7	.003
CSU Sacramento				
% Underestimate (< 3 years)	19.2	24.2	21.8	.194
% Correct (=3 years Math)	36.5	52.1	44.8	.001
% Overestimate (> 3 years)	44.2	23.7	33.3	.000

Note: Subgroup sample sizes may differ from total due to missing data

Knowledge of Curricular Requirements by Race

Because juniors generally know the curricular requirements better than freshmen, all remaining analyses include 11th graders only. Note that for analyses by race, cell sizes are small so tables should be interpreted with caution. As shown in Table 14, African-American students were among the least likely to report correctly the number of years of math and English required for each campus, and for knowing at least three of the six subject requirements for CSUS. Chinese American students displayed the most accurate knowledge overall of UCD curricular requirements and were the most likely to know three of the six CSU requirements.

Latino and Southeast Asian students appeared to have some specific but incomplete knowledge. For example, while 87% of Latinos knew the CSUS English requirement (the highest among all groups), only about 22% knew at least three of the subject requirements (the lowest among all groups). Similarly, while Southeast Asian students were among the most likely to know the UCD requirements (overall and particularly the math requirements), these students were the least likely to provide the correct number of English courses required for CSUS.

TABLE 14. Knowledge of Curricular Requirements by Race (11th Graders Only).

Course Requirement	Race							Total (n=235)
	African- Am (n=19)	White (n=67)	Latino/a (n=23)	Chinese- Am (n=29)	SE Asian (n=29)	Other Asian (n=29)	Multi- racial (n=37)	
UC Davis								
% Know English (=4 yrs)	84.2	92.5	95.7	96.4	89.3	96.6	94.4	93.1
% Know math (=3 yrs)	42.1	53.7	47.8	60.7	57.1	48.3	50.0	51.7
% Know 3 or more of 6	36.8	32.8	30.4	44.8	37.9	34.5	24.3	34.5
CSU Sacramento								
% Know English (=4 yrs)	78.9	86.6	87.0	79.3	72.4	80.0	75.0	80.9
% Know math (=3 yrs)	44.4	59.7	56.5	44.8	44.8	56.7	50.0	52.1
% Know 3 or more of 6	42.1	61.2	21.7	72.4	62.1	62.1	32.4	53.2

Note: Subgroup sample sizes may differ from total due to missing data.

Since only about half of the students knew the math requirements, whereas well over 80% of the students knew the English requirements, we ran further analysis on the responses for math alone. African-Americans were the most likely to overestimate the requirements. In addition, Latinos and Southeast Asians were the most likely to underestimate the math requirements for UCD while Chinese Americans and Southeast Asians were the most likely to underestimate the math requirements for CSUS.

Knowledge of Curricular Requirements by School Performance, Academic Track, and Use of Key Agent

No significant difference was found in knowledge among the three school performance levels with respect to the math and English requirements for UCD. For CSUS, students in high-performing schools were more likely than their counterparts in lower-performing schools to know that four years of high school English are required for admission (90% vs. 79%).

Patterns are slightly different when looking at knowledge of all the requirements. Students in the high-performing schools were again more likely to know at least three of the six curricular requirements for UCD (67%) than their counterparts in middle-performing (48%) and low-performing schools (54%), but for the CSUS requirements, the highest proportion of students who knew three or more of the course requirements were among those at low-performing schools (65%). Less than half of the students in high-performing schools could correctly name at least three of the six course requirements at CSUS.

Looking specifically at knowledge of the math requirements by school performance, students in low-performing schools were more likely than students in middle-performing schools to underestimate the required number of years of math for UCD and CSUS. Furthermore, students in middle-performing schools were the least likely to underestimate these requirements but these students were also the most likely to overestimate these requirements as well. These data suggest that students in middle-performing schools receive less information and therefore have less knowledge about the courses needed for admission to the four-year colleges.

“Academic track and knowledge of curricular requirements were directly related: dual-honors students displayed the most knowledge.”

Academic track and knowledge of curricular requirements were directly related: dual-honors students displayed the most knowledge, while non-honors students displayed the least. Over 60% of dual-honors students knew at least three of the course requirements for UCD and over 70% knew them for CSUS. Less than half of the non-honors students possessed this same level of knowledge. Interestingly, dual-honors students were more likely than non-honors students to underestimate the math requirements for CSUS. This pattern may indicate that the higher-aspiring dual-honors students undervalue the entrance requirements to the less selective CSU campus.

Patterns of knowledge related to interaction with key agents produced mixed results. Students who spoke to teachers at least once about college admission requirements were more likely than those who did not talk to teachers to know the CSUS math requirement exactly and less likely to underestimate this requirement. On the other hand, students who spoke to a high school counselor were twice as likely to underestimate the number of years of CSUS math requirement, and those who had spoken to a college representative were three times more likely to underestimate the number of years of math required for UCD.

In sum, students possessed more knowledge of the course requirements for CSUS than for UCD. Based on survey data as well as focus group responses, students in honors courses displayed more specific knowledge than students who were in college-preparatory courses. Furthermore, students in the high-performing schools were the most knowledgeable of UCD's requirements, while students in the low-performing schools were the most knowledgeable of CSUS's requirements. Overall, students indicated the greatest understanding of the English requirements and much less understanding of the mathematics requirements.

Student Knowledge of University Placement Exams

Our survey asked students to identify the subject areas in which CSUS and UCD test students for placement. The question read in the following way: "In what subjects does CSU Sacramento and UC Davis test new students to place them in *college-level courses*?" Students were able to mark any number of the following five subjects: English, mathematics, laboratory science, foreign language, and visual and performing arts. The correct answer is that both universities conduct placement tests in math and in English only. UCD administers the Subject A exam for English placement and the Mathematics Development Testing Program (MDTP). CSUS administers the Entry Level Mathematics (ELM) test and the English Placement Test (EPT).

Knowledge of Placement Exams by Grade

When counting the students who had indicated that each university required an English or math placement exam irrespective of their answers for the other three subjects, knowledge of the exams appears extremely high (Table 15). The greater than 90% figures, however, are a result of students assuming that colleges require placement tests in all subjects. The number of students who knew the policies accurately—that exams are required only for math and English—is actually quite low. Less than one in five (17%) students knew the UCD placement policy at that level, and less than a third knew the CSUS policy. Eleventh graders were more than twice as likely as ninth graders to know that math and English were the only two subjects tested at either state university.

TABLE 15. Knowledge of University Placement Exams by Grade.

Placement Exam	Grade		Total (n=453)	t-test p-value
	9th (n=214)	11th (n=239)		
UCD				
% Know English Placement	92.5	95.4	94.0	.206
% Know Math Placement	93.0	94.9	94.0	.389
% Know English and Math (both and only)	10.3	23.6	17.3	.000
CSUS				
% Know English Placement	93.9	95.8	94.9	.376
% Know Math Placement	93.0	93.7	93.3	.773
% Know English and Math (both and only)	16.8	39.7	28.8	.000

Note: Subgroup sample sizes may differ from total due to missing data.

Knowledge of Placement Exams by Race

Table 16 shows 11th graders' knowledge of placement exams by race. In contrast to African-Americans' relative lack of knowledge of curricular requirements mentioned earlier, African-American students displayed the greatest knowledge of the two placement exam requirements for UCD and were equally knowledgeable to students of other races of the two exams required by CSUS. Chinese-Americans were the least knowledgeable about UCD and Southeast Asians were the least knowledgeable about CSUS.

TABLE 16. Knowledge of Required University Placement Exams in English and Math by Race (11th Graders Only).

English and Math Placement Exam	Race							Total (n=235)
	African- Am (n=19)	White (n=67)	Latino/a (n=23)	Chinese- Am (n=29)	SE Asian (n=29)	Other Asian (n=29)	Multi- racial (n=37)	
% Know for UCD	22.9	20.0	15.9	11.1	17.3	15.3	15.9	17.3
% Know for CSUS	29.2	29.2	27.3	31.5	21.2	33.9	30.4	29.1

Note: Subgroup sample sizes may differ from total due to missing data.

Knowledge of Placement Exams by School Performance, Academic Track, and Use of Key Agent

In general, knowledge of the English and math placement exams at the two universities was fairly low and not differentiated by type of school, track, or key agent. Similar to the analyses above, knowledge of the two CSUS exams appears greater among students than of the two UCD exam requirements. Surprisingly, 11th graders who did *not* talk to a high school counselor about admission were more likely to know the placement policy for UCD (35%) than were students who did talk to a high school counselor (20%). This trend was similar for knowledge of CSUS placement policy, but not statistically significant.

Although students displayed a low level of specific knowledge of university placement exams, students expressed the desire to know more about these tests and to be better prepared to take these tests. Teachers and administrators expressed their growing concern over issues of university placement and remediation. Students spoke about how their schools prepared them for the subject requirements and SATs needed to gain admission to college, but most did not mention whether schools provided help on how to succeed once they were *in* college. As one English 11 Honors student at Applewood expressed:

I think they should prepare us better for the placements tests so that we don't get stuck in basic classes. I think we should have the opportunity to know not necessarily what's on the test, but have a good idea of it so that we know what to expect.

Knowledge of College Admission Selection Criteria

In our focus groups we asked students about the selection criteria for UC Davis and CSU Sacramento. Students generally stated that UCD was more difficult to get into, that students needed a high GPA, and that extracurricular activities mattered. In our survey we gathered more specific data, asking students to rate the importance of 15 possible criteria for admission to UCD and CSUS.

Using a five-point scale, students rated each criterion as either: “single most important,” “very important,” “moderately important,” “minor importance,” or “not considered/not important.” In order to evaluate the “accuracy” of these responses, we compared them to the rankings of same criteria provided by the admission directors at the respective institutions.

We examined student knowledge of specific criteria rated by the UCD and CSUS admission offices at the two extremes—as important (“single most important” or “very important”) or unimportant (“not considered/not important”). Seven of the fifteen criteria were rated as important by the UCD official and four criteria were rated important by the CSUS official (see criteria listed in Table 17). Three criteria were deemed important by both universities: high school grades, SAT-I, and high school courses. Two criteria were deemed unimportant for both universities: ability to pay and race.

Knowledge of Admission Criteria by Grade

Knowledge of the criteria that might be termed “traditional admission criteria” was quite high (Table 17). From 80% to over 90% of students correctly marked as important selection criteria grades, test scores, high school courses, and in the case of UCD, the application essay. Almost half the students failed to recognize senior-year grades as an important criterion for CSUS, however. And, similar proportions did not view volunteer work and exceptional talent in a specific area as important for UCD.

Knowledge of criteria deemed “unimportant” was extremely poor. Less than 10% of the total sample correctly identified as unimportant to UCD three criteria (high school reputation, ability to pay, and letters of recommendation), and as unimportant to CSUS three criteria (SAT-II, class rank, and ability to pay).

“Nine out of ten students placed importance on factors that are not considered in the admission process.”

In other words, approximately nine out of ten students *overestimated* the importance of these admission criteria; they placed importance on factors that are *not considered* in the admission process. Given the public awareness of efforts to remove race from college admission policies in California, it is not surprising that a sizeable proportion of students (~40%) correctly marked it as unimportant. However, the conjugate result suggests that a majority of students still believe race to be a factor of some importance in admission policy at both public institutions.

Table 17 also shows that for both universities, juniors were more likely than freshmen to know that a student’s ability to pay for college was not an important admission criterion. On the other hand, freshmen were more likely to know that race was unimportant. Two additional significant differences were found between freshmen and juniors. First, juniors were slightly more likely than freshmen to know that the application essay was a very important criterion for admission to UCD (87% vs. 80%). Conversely, 90% of freshmen knew that the SAT-II was an important criterion for admission to UCD compared to just 78% of the juniors.

TABLE 17. Knowledge of Admission Criteria by Grade.

Admission Criteria	Grade		Total (n=451)	t-test p-value
	9th (n=208)	11th (n=237)		
% Correct for UC Davis				
<u>Important Criteria</u>				
High school grades	92.4	92.4	92.4	.994
SAT-I or ACT	89.1	88.7	89.9	.882
SAT-II	89.6	78.6	83.8	.001
Student’s HS curriculum	85.8	82.6	84.1	.340
Application essay	80.2	87.0	83.8	.051
Exceptional talent	57.8	55.7	56.7	.651
Volunteer work	51.7	47.7	49.6	.400
<u>Unimportant Criteria</u>				
High school’s reputation	4.8	6.4	5.6	.463
Ability to pay	4.7	10.6	7.8	.021
Letters of recommendation	1.0	1.3	1.1	.753
Race	44.8	34.9	39.6	.032
% Correct for CSU Sacramento				
<u>Important Criteria</u>				
High school grades	87.2	80.7	83.7	.061
Senior year grades	73.5	42.8	57.0	.000
SAT-I or ACT	90.0	81.5	85.5	.010
Student’s HS curriculum	86.7	77.8	81.5	.007
<u>Unimportant Criteria</u>				
Geographic background	27.8	24.7	26.1	.464
SAT-II	1.0	2.9	2.0	.137
Rank in class	2.4	2.9	2.7	.707
Ability to pay	3.8	12.2	8.3	.001
Race	44.5	35.2	39.6	.043

Note: Subgroup sample sizes may differ from total due to missing data.

Knowledge of Admission Criteria by Race

African-Americans were the only group that placed greater importance on standardized test scores (SAT-I, SAT-II, ACT) than on high school grades. Among the criteria deemed important by the UC and CSU admission officers, the importance of volunteer work was underestimated, especially among white students. Although the ability to pay for college is not considered in UCD admission policy, all of the multiracial 11th graders in our sample gave some importance to this factor, and even the group that displayed the most knowledge, Chinese-Americans, erroneously cited ability to pay as an important factor at a rate of over 75%.

A majority of students within each racial group continues to believe that race is considered in admission. The previous beneficiaries of affirmative action, however, are among the most likely to maintain that belief. For the UCD criteria, for example, about 75% of African-American students and almost 80% of Latinos marked race as a factor in admission. Similar patterns are evident in the data for CSUS.

Two additional patterns in the data are unique to CSUS, however. First, although about 80% of all 11th graders understand the importance of high school grades for admission to CSUS, almost one-third of Chinese American and multiracial students *downplay* its importance. Regarding the importance of senior-year grades, almost 60% of the 11th grade sample underestimated their importance, including almost 80% of African-Americans—the largest among all racial groups.

Knowledge of Admission Criteria by School Performance, Academic Track, and Use of Key Agent

We found significant differences in 11th graders' knowledge of admission criteria by school performance. For UCD, students in the low-performing schools (82%) were less likely than students in the mid-and high-performing schools (91% and 94%) to correctly ascertain the importance of the SAT-I and one's high school curriculum. These students were also more likely to underestimate the importance of having an exceptional talent, compared to their peers in high-performing schools. Interestingly, students attending the middle-performing schools were the least likely to overestimate the importance of a high school's academic reputation.

Among the CSUS criteria, only two showed significant differences by school performance. Almost 90% of the students in middle-performing schools correctly estimated the importance of high school curriculum for admission, a figure greater than that among students in high-performing schools (70%). Although the proportion is quite low (~6%), students attending low-performing schools were the most accurate regarding the lack of importance of the SAT-II for admission to CSUS.

Analysis by academic track indicates striking differences in knowledge of CSUS criteria among dual-honors and non-honors students. In every "very important" criterion, students in the highest track undervalued the criterion much more than their non-honors counterparts. The most striking difference is students' assessment of the importance of senior-year grades. Only one quarter of dual-honors students correctly believe senior grades to be important for admission, compared to about 60% among non-honors students. Conversely, knowledge of UCD admission criteria is distinguished very little by academic track.

It is apparent, then, that the significant undervaluing of CSUS admission criteria by dual-honors students is likely due to their low estimation of the university's academic competitiveness. Compared to non-honors students, dual-honors students also better understood that ability to pay was not important for UCD admission (17% vs. 4%) and the SAT-II was not important for CSUS admission (6% vs. ~0%).

Finally, in our analysis of admission criteria knowledge by use of key agent, we found some significant differences. Surprisingly, students who had *not* spoken to a parent were much more likely to understand that ability to pay did not matter for admission to both universities. Those who had not spoken to a parent about admission were more than three times as likely to understand this criterion for UCD (33% vs. 9%) and more than twice as likely for the CSUS policy (29% vs. 11%). A similar trend was apparent with regard to use of a counselor and the "ability to pay" criterion for UCD.

"Negative" parent effects were also evident for knowledge of the CSUS policy regarding SAT-I and class rank, where students were again more likely to understand the importance of the admission criterion if they did *not* speak to a parent about admission. There were two expected trends or positive relationships with use of a key agent. Students who had spoken to a teacher or a college representative were more likely to correctly understand the importance of the application essay for UCD, and counselors appeared to positively impact understanding of one's class rank in the admission process for CSUS.

"Parents' estimates of tuition were more accurate than student estimates, while their knowledge of curricular requirements was less accurate."

Parent Knowledge of Postsecondary Policies

In this final section, we include a brief analysis of parent data. We looked specifically at parent knowledge of tuition costs and curricular requirements at UCD and CSUS. In general, we found no evidence of a relationship between student knowledge and parent knowledge. Parents' estimates of tuition were more accurate than student estimates, while their knowledge of curricular requirements was less accurate.

Parent Knowledge of Tuition

In terms of mean estimates, parents were much closer to actual tuition costs than were students. Still, compared to actual annual tuition of approximately \$4,000 (UCD), \$2000 (CSUS), and \$300 (local community college), parents still greatly overestimated these costs at about \$16,000, \$11,000, and \$5,000, respectively (Table 18). Unlike the analysis of the student data, there were no significant differences in tuition estimates between parents of 9th and 11th graders.

TABLE 18. Parent Knowledge of Tuition.

Institution	Mean Estimate			t-test p-value
	9th (n=172)	11th (n=156)	Total (n=343)	
UC Davis	\$15,942	\$17,021	\$16,271	.860
CSUS	\$10,145	\$11,936	\$11,006	.669
Local Community College	\$4,566	\$5,459	\$4,907	.795

Note: Subgroup sample sizes may differ from total due to missing data.

Looking at all parents across SES and school performance categories, we observe the expected patterns clearly. As shown in Table 19, parents from higher SES backgrounds estimate tuition costs much more accurately than do mid- and low-SES parents. Because of large standard deviations in tuition estimates as well as small cell sizes for the low-SES parents, however, only the mid-SES versus hi-SES differences were statistically significant. The bottom panel of the table indicates that parents of children attending the low-performing schools are also most likely to overestimate tuition costs at any of the three public institutions.

TABLE 19. Parent Knowledge of Tuition by SES and School Performance.

Institution	Mean Estimate by SES			t-tests (p-values)		
	Low-SES (n=44)	Mid-SES (n=106)	Hi-SES (n=127)	lo-mid	mid-hi	lo-hi
UC Davis	\$35,050	\$12,504	\$9,213	.222	.020	.162
CSUS	\$27,880	\$8,737	\$5,528	.208	.015	.142
Local Community College	\$17,298	\$3,047	\$1,569	.249	.090	.203

Institution	Mean Estimate by School Performance			t-tests (p-values)		
	Hi-Perf (n=113)	Mid-Perf (n=111)	Lo-Perf (n=119)	hi-mid	mid-lo	hi-lo
UC Davis	\$10,389	\$9,830	\$27,867	.600	.028	.033
CSUS	\$6,040	\$7,600	\$19,298	.082	.048	.025
Local Community College	\$1,821	\$1,815	\$11,113	.986	.057	.057

Note: Subgroup sample sizes may differ from total due to missing data.

Parent Knowledge of Curricular Requirements

Parent knowledge of the curricular requirements for admission to UCD and CSUS was no better, and perhaps a bit weaker, than that of students. The number of parents who knew the required number of years for all six subjects was exceedingly low. Only 4 out of 433 parents knew all the requirements for UCD, and just 5 knew the requirements for CSUS. As was true for students, the two requirements that parents knew best—although at a lower percentage than students—were those for English and foreign language. For example, nearly 90% of the students in our sample correctly reported the four-year English requirement for UCD, compared to just two-thirds of the parents.

Also, fewer parents appeared to know the math requirement (Table 20). While few parents knew all of the curricular requirements for either university, 40% knew at least three of the UCD requirements and about 43% knew at least three of the CSUS requirements. These proportions were slightly higher among the student responses. Unlike the student data, there were no significant differences in knowledge between parents of 9th and 11th graders.

TABLE 20. Parent Knowledge of Curricular Requirements by Grade.

Course Requirement	Percent Among			t-test p-value
	9th (n=215)	11th (n=218)	Total (n=433)	
UC Davis				
Know English requirement (=4 years)	68.8	68.8	68.8	.995
Know foreign lang req (=2 years)	50.7	43.1	46.9	.115
Know soc science req (= 2 years)	34.9	31.7	33.3	.476
Know lab science req (=2 years)	33.5	32.6	33.0	.839
Know math requirement (=3 years)	31.2	25.2	28.2	.171
Know visual/perf arts req (= 0 years)	7.4	7.8	7.6	.889
Know 3 or more of 6 requirements	42.8	37.6	40.2	.273
CSU Sacramento				
Know English requirement (=4 years)	60.0	61.5	60.7	.755
Know foreign lang req (=2 years)	54.9	57.3	56.1	.608
Know visual/perf arts req (= 1 year)	48.4	42.7	45.5	.234
Know math requirement (=3 years)	31.2	35.8	33.5	.310
Know lab science req (=1 year)	14.0	10.6	12.2	.282
Know soc science req (= 1 year)	7.0	9.6	8.3	.317
Know 3 or more of 6	45.6	39.9	42.7	.234

Note: Subgroup sample sizes may differ from total due to missing data.

Table 21 illustrates the extent to which parents under- or over-estimated curricular requirements. Earlier in this section, we noted that students incorrectly reported math requirements because they tended to overestimate the number of years of math required for admission, particularly for UCD. Most parents also overestimated the math requirement for UCD but tended to underestimate the requirement for CSUS.

Given that the math requirement for both universities is three years, parents may be erroneously assuming a higher requirement for the more selective UC campus, while many students assume the maximum number of math courses (4) is required for either school. Levels of parent and student knowledge do not appear to be related. Correlations between the number of requirements guessed correctly by parents and students are also somewhat weak ($r = 0.15$, $p < .01$ for CSUS and $r = 0.24$, $p < .01$ for UCD).

TABLE 21. Parent Knowledge of Math Requirements by Grade.

Knowledge of Math Requirement	Percent Among			t-test p-value
	9th (n=215)	11th (n=218)	Total (n=433)	
UC Davis				
Underestimate (< 3 years)	29.3	32.6	30.9	.463
Correct (=3 years Math)	31.2	25.2	28.2	.171
Overestimate (> 3 years)	39.5	42.2	40.9	.574
CSU Sacramento				
Underestimate (< 3 years)	41.9	36.7	39.3	.272
Correct (=3 years Math)	31.2	35.8	33.5	.310
Overestimate (> 3 years)	27.0	27.5	27.3	.899

Note: Subgroup sample sizes may differ from total due to missing data.

Surprisingly, we found no significant differences by school performance or SES for parent knowledge of three or more curricular requirements for either university. One additional distinguishing factor surfaced in our analysis, however. Parents who reported receiving course requirement information from their child’s school were significantly more likely to know at least three of the CSUS requirements compared to those who said they had not received such information (49% vs. 34%, respectively). A similar but smaller difference regarding UCD requirements was also evident but not statistically significant.

SUMMARY OF FINDINGS

- ☞ Using the selectivity of the institutions as a measure of the level of students’ aspirations, students of Asian descent, from higher SES families, in higher academic tracks, from higher-performing schools, and with higher GPAs displayed the highest aspirations.
- ☞ Although students understood the relative costs of the three types of institutions, they greatly overestimated the costs. Students in low-performing schools were most likely to grossly overestimate the cost of UCD and a community college, and students in the high-performing schools were most likely to fall within the target range.
- ☞ Students knew more about CSUS’s requirements than UCD’s. Students also demonstrated the most accurate knowledge of English course requirements and much weaker knowledge of mathematics requirements. On our surveys and in our focus groups, students in honors courses displayed more specific knowledge than students in college-preparatory courses. Furthermore, students in the high-performing schools were the most knowledgeable about UCD’s requirements, while students in the low-performing schools were the most knowledgeable of CSUS’s requirements.

“Students generally had a poor understanding of the English and math placement exams at the two universities.”

- ☞ Students generally had a poor understanding of the English and math placement exams at the two universities. Less than 30% of students knew CSUS’s placement exam policy and less than 20% of students knew UCD’s policy.
- ☞ Students in the high- and mid-performing schools generally displayed a greater understanding of admission selection criteria than students in the low-performing schools.
- ☞ Overall, 60% of all students and two-thirds of 11th graders incorrectly rated race as an important criterion for admission to UCD and CSUS.
- ☞ Over 90% of juniors believed incorrectly that the ability to pay for college was a factor in UCD’s and CSUS’s admission selection processes.
- ☞ Levels of parent and student college knowledge appear to be unrelated. Parents’ estimates of tuition were more accurate than student estimates, while their knowledge of curricular requirements was less accurate.

About the Authors

Anthony Lising Antonio is assistant professor of education at Stanford University, and assistant director of the Stanford Institute for Higher Education Research. Much of his research focuses on equity in access to higher education and college choice. Along with Andrea Venezia and Michael Kirst, he recently completed *Betraying the College Dream*, a research report documenting the disparities in college knowledge among students in high- and low-performing high schools from high and low socioeconomic backgrounds.

Samuel H. Bersola is Interim Vice President of Student Services and former Dean of Student Support Services at Mission College, a community college in Santa Clara, California. He earned a bachelor's degree in civil engineering from UC Berkeley; an Ed.M. in educational administration, planning, and social policy from Harvard University; and a Ph.D. in educational administration and policy analysis from Stanford University. He was a research assistant with the Bridge Project at Stanford and a research consultant to the University of California Office of the President (UCOP) and the Intersegmental Coordinating Committee (ICC) of the California Round Table. His research for the UCOP and ICC focused on the effects of high-stakes accountability testing on high school teachers. Prior to beginning his doctoral studies at Stanford, he worked as an assistant director of undergraduate admissions at the University of Southern California, director of the MESA/Minority Engineering Program at California State University Maritime Academy, and assistant dean of admission at Amherst College in Massachusetts. He was a teaching fellow at Northfield Mount Hermon School in Massachusetts as well as TESIS England Summer School. He also served as director of college counseling and taught mathematics at Marin Academy, a private secondary school in San Rafael, California.

Section 2

Linkages and Disjunctures: California's K–12 and Community College Systems

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INTRODUCTION

This research seeks to better understand the transition from high school to community college by examining the policies and practices that shape this juncture.¹ It is hoped that the findings will play a part in strengthening the linkage between higher education and the K–12 educational system by 1) strengthening the preparation of high school students for college; 2) increasing college persistence and completion rates; and 3) providing better articulation between K–12 curriculum frameworks, standards, and assessments, and those of higher education.

This report for Policy Analysis for California Education (PACE) provides descriptive analyses of the policies as well as the disjunctures that exist in both educational systems, and especially how they affect California community colleges. The original data comes from two California community colleges in the Sacramento metropolitan area, Cosumnes River College and Sacramento City College.²

This research focuses on:

- The admissions and placement policies and practices for recent high school graduates who are attending community college.
- The transition environment for these students, and whether there are observed disjunctures between high school and community college curricula, skills assessments, and course placement.
- The types of transition services and programs available to students from high school to community college, and from community college to a four-year institution.

¹ This research was conducted as part of *The Bridge Project: Strengthening K–16 Transition Policies*, a five-year study conducted in several states. This project, sponsored by the Stanford Institute for Higher Education Research (SIHER), was supported by The Pew Charitable Trust and the National Center for Postsecondary Improvement (NCPI) and its sponsor, the U.S. Department of Education, Office of Educational Research and Improvement.

² Additional community college research for the Bridge Project was conducted in Baltimore County, Maryland, and Metropolitan Portland, Oregon.

Rationale

Community colleges are understudied in higher education research, though they are the point of entry for many higher education students. Over 1,100 community colleges in the U.S. serve over half of the U.S. undergraduate enrollment. In California they play a particularly important role. The California community college system has 108 colleges and serves 2.9 million students, making it the largest system of higher education in the world (<http://www.cccco.edu>).

Additional reasons for more research on community colleges include:

- Completion rates of first-time, degree-seeking students at community colleges are quite low for both associates' and bachelors' degrees (Choy 2002).

“California community colleges provide most of the costly postsecondary academic remediation needed by students to complete a two- or four-year degree.”

- California community colleges provide most of the costly postsecondary academic remediation needed by students to complete a two- or four-year degree.
- Some California community colleges have an extensive history of collaboration with high schools. Other postsecondary educational institutions may benefit from these types of partnerships.
- In times of economic downturn and increasing tuition, more people look to the community college for postsecondary education and training. An understanding of the role of these institutions in the preparation of young people for the job market can benefit policy development.

Given the large and significant role community colleges play in U.S. higher education, the Bridge Project and PACE researchers undertook this study.³

RESEARCH METHODS

The qualitative study, focusing on two California community colleges, consisted of interviews with key administrators, faculty, and staff; focus groups with students; and document review, including websites. Data were collected in 2001.⁴ Andrea Venezia and Michael Kirst, directors

³ The research for the California case studies was conducted by K.C. Boatsman. Additional analyses and crosscutting work were done by Andrea Conklin Bueschel. This report contains additional resources and some updates not included in either the technical report by Boatsman or the crosscutting analysis by Bueschel.

⁴ Technical aspects of data collection and protocols used are available at <http://bridgeproject.stanford.edu> or by contacting the authors.

of the Bridge Project for the Stanford Institute on Higher Education Research, designed the national study and provided the interview protocols used in this community college study.

Administrators, faculty, and staff interviewed by the researchers held key positions, and thus were able to offer input on a range of topics, including counseling, assessment, admissions, partnerships, orientation, instruction, curriculum, and outreach. The student focus groups included mostly students who matriculated soon after completing high school, as well as some older students, and were representative of community college students in terms of gender and ethnic diversity. In some cases the focus groups were drawn from existing groups, such as an activity board or a college remedial class. Although the student sample may be biased towards more actively engaged students (since all participants were volunteers), students were still quite candid and critical in their comments, while also highlighting positive aspects of their experiences.

The documents we reviewed included institutional publications such as catalogs and schedules of classes; handouts and informational fliers given to students; documents required of students such as the application for admission; research reports where available; campus websites; and other documents as appropriate.

In the report, we first provide a survey of the current literature on community colleges in the U.S. and their connections to other educational systems, both K–12 and four-year institutions relevant to California. Next we present an overview of findings from the research in California. The report concludes with policy recommendations and suggestions for additional research.

CONTEXT FOR CALIFORNIA AND U.S. COMMUNITY COLLEGE EDUCATION

Background

History

The first two-year institution⁵ in the United States was Joliet Junior College, which opened in Illinois in 1901 (AACC website). The growth in community colleges, especially since the 1960s, has been dramatic, and has surpassed that of four-year institutions. Between 1960 and 1990, four-year college enrollment doubled, while enrollment for two-year institutions increased five-fold (Rosenbaum 1999, citing NCES data). The dramatic growth in the 1960s was due in part to a newly-created national network of two-year institutions.

By the late 1990s there were 1,166 public and private community colleges, or about 1,600 when separate, multiple-campus colleges are included (AACC website). Over 100 million students have attended community college since the first one opened in 1901, pursuing everything from automotive technology to high school degree completion to English language acquisition to

⁵ Although this report uses the term “community college” for all two-year institutions, some references may still use “junior college.” For the purposes of this report, the terms are interchangeable.

advanced mathematics. Currently, over half of the undergraduates enrolled in the U.S. attend community colleges (Bailey 2002).⁶

Enrollment Profile

Community college students represent a wide diversity of backgrounds. Students in two-year institutions are likely to be older, more ethnically and racially diverse, and less affluent than their four-year counterparts. The following profile of community college students is based on data from the American Association of Community Colleges (AACC), in conjunction with other surveys:

- 58% are women.
- 30–60% are members of a racial minority group.
- 32% are 30 years or older, while 36% are 18–22 years.
- 64% attend part-time.
- 65% depend on their parents financially (compared to 95% of four-year students).
- half are the first in their families to attend college.
- 12–28% already have a postsecondary degree.

Of California community college students in the fall of 2000:

- 56% were women.
- 48% were 24 years old or younger.
- 41% were white (<http://www.cccco.edu/divisions/tris/mis/reports.htm>).

Community colleges are the least expensive higher education option, which explains in part why such a wide range of students takes advantage of them. The average tuition for community colleges nationally is around \$1,500, considerably less than for four-year institutions (AACC website). California's community colleges don't charge tuition, and their fees are among the lowest in the country. At the time data was collected for this report, there was no tuition, and student fees were only \$11/unit.⁷

Community colleges also have a different faculty profile than their four-year counterparts. Doctorates are not required for faculty at California community colleges, and there is a higher percentage of part-time and adjunct faculty. Approximately two-thirds of public community college faculty are on part-time appointments, and all faculty members are paid less than their four-year counterparts (AACC website). Two-year colleges also have a distinct mission of access in higher education, which helps to account for their diverse student population.

One of the most significant trends in community college attendance is that they serve as the point-of-entry for some students who wouldn't otherwise participate in postsecondary education. Low-income students, students of color, recent immigrants, and students who are the first in their families to attend college are often over-represented in two-year institutions. Because many of

⁶ A recent survey, Community College Survey of Student Engagement (2002), notes that only one in six of all two- and four-year undergraduates meets the stereotype of college student, that is, 18 to 24 years old, living on campus, and attending school full-time. A majority of the rest of the undergraduates attends community colleges.

⁷ California's recent budget crisis has affected community college funding, so these fees have been raised, although they are still below national two-year and four-year average college tuitions.

these students do not believe that they have access to four-year institutions, the community colleges are the only way for them to expand their educational opportunities and prepare for a career.

According to the Census Bureau, about 85% of the growth in the national population of 18–24 year olds will come from minority and immigrant families over the next decade. Over 40% will come from low-income families (Kirst and Bracco 2002). In 2010, the California K–12 system will be 60% Latino, 20% white, 12% Asian/Asian American, and 8% African American (California State Department of Education 2002). Given these trends, community colleges are likely to play a growing role in the higher education system.⁸

Mission

California community colleges are defined by their commitment to being open-access institutions. Generally, if a student can benefit from education, that student is welcome. This philosophy has ensured that community colleges continue to serve students from all backgrounds.

The mission of community colleges has broadened. “Starting primarily as junior colleges with an emphasis on academics, the [community] colleges are now complex institutions taking on a broad array of educational, social, and economic functions” (Bailey and Averianova 1999). Because these institutions were created to serve the public so directly, most feel obliged to respond to the changing needs of the community. Some critics contend that community colleges need to narrow their focus in order to provide better service in fewer areas. Others argue that the mission dictates the need to continue to offer a wide, and often growing, set of services and programs.

Later in this report, research findings document this dilemma between the community college’s charge to maintain its commitment to open access, and the need to uphold standards for both college-level work and industry-level expectations. Faculty and staff on community college campuses are often explicitly committed to the open-access mission. Indeed, they believe that they are best positioned to respond to the needs of the community, but struggle as open-access institutions to find ways to meet those needs given limited resources. Grubb notes the particular struggle of those trying to balance the various standards in their departments and institutions with maintaining open and flexible policies (Grubb 1999).

The mission of community colleges will likely ensure that they will continue to be necessary resources for all people in their communities. “Responding to educational needs often ignored by other institutions, community colleges have been profoundly transformed... These functions of community colleges define its unprecedented social and economic significance. No other institution has demonstrated so much flexibility in adapting to the community’s needs” (Bailey and Averianova 1999, p. 5).

⁸ This growth is contingent, in part, on available financial support for low-income students.

Remediation and Preparation

In its reporting on higher education, the mainstream media has often fixated on the issue of remediation. News stories frequently contain quotes from politicians expressing alarm that college students, particularly those at four-year institutions, can't read or write well enough to handle college material. For some policymakers, the "solution" is to move all or most remedial work to the community colleges. "A number of state and large urban public college systems are considering or have begun to implement policies that would locate all remediation within the community college sector (see, for example, Florida, Massachusetts, Georgia, Texas, Virginia, and the CUNY system in New York City)" (Shaw 1997).

The need to remediate students who enter their institutions with limited basic skills has made remedial education⁹ an increasingly important function for community colleges. Remedial courses address basic levels of reading, writing, and mathematics, skills that should have been taught before and during high school.¹⁰ Though remedial courses are offered on college campuses, they are not considered college-level work, and therefore usually cannot receive college-level credit.

"Various surveys report remediation rates of between 33% to 95% of entering community college students."

It is quite difficult to track exactly how many students require remediation, because some are assessed to need it yet never enroll in the required courses. At community colleges, not all students are degree-seeking, so they are not required to enroll in these courses, despite assessment results. Various surveys report remediation rates of between 33% to 95% of entering students, depending on how it is measured and which group of students is included (for example, only degree-seeking students) (Shults 2002; The Abell Foundation 2002). Clifford Adelman, senior research analyst at the U.S. Department of Education, estimates that over 60% of community college students receive some sort of remediation.¹¹

Our focus in this study is on high school students who enter community college. Unfortunately statistics on community college students are generally combined with those on students attending four-year colleges, which further complicates making useful estimates. While currently there is no composite remediation figure for California, the remediation rates in the case study colleges in this study were around 40% (see section on "Remedial Education/Overall Preparation" later in this report).

⁹ The terms "developmental" and "basic skills" are also used. "Remedial" is used most often by researchers. All will be used here.

¹⁰ Bridge research did not evaluate the effectiveness of instruction for native speakers and English Language Learners, although other research has focused on it. In addition, most of the literature does not address how those skills are assessed. For an example, see Grubb (1999). Bridge Project research focuses on placement tests and their role in the high school to college transition. They will be discussed further in the section on Findings.

¹¹ Personal communication between C. Adelman and M.W. Kirst (April 2002).

Remediation in higher education highlights an important disjuncture between the K–12 and higher education systems. The spiraling growth in remediation reported in the 1990s suggests that it is not just returning students who are “rusty” in algebra who need basic skills help. Rather there seem to be more students leaving high school without having mastered these skills in the first place.

While community colleges are perceived as welcoming of all students who want an education, as Rosenbaum points out, they have failed to adequately communicate their standards for college-level work. After completing a nationwide study, Rosenbaum concluded, “Students’ failures arise not from barriers inside colleges, but from a failure of colleges (and especially community colleges) to convey clear information about the preparation that high school students need in order to have a strong chance of finishing a degree” (Rosenbaum 1999). By linking preparation to students’ persistence in completing their higher education, Bridge researchers focused on a significant issue: translating access into success (Venezia, Kirst, and Antonio 2003).

Rosenbaum argues that if students are aware in advance of what it takes to succeed, they will adjust their behavior in high school and work to achieve at a higher level before matriculating.¹² He notes that a sizable minority of students he surveyed (46%) agreed with the statement, “Even if I do not work hard in high school, I can still make my future plans come true” (Rosenbaum 1999). This “second chance” message from community colleges seems to be coming through clearly for these students.

The message they are not hearing is that if they do not complete high school coursework successfully, they may not be able to take the college courses they want or get college-level credit until completing non-credit remedial work. As noted in later sections, many students are surprised by their lack of preparation, unaware that with remedial coursework it will take longer to complete their requirements and is likely to cost more because of the additional courses.

Despite the problems that can arise with unclear signals and lack of preparation, many community college staff contend that the idea of second chances is integral to their school mission. In his work, Bailey found support for this view. “Weak high school preparation will also continue to create a role for community colleges, essentially giving students a second chance to prepare for college-level work” (Bailey 2002). At the same time, staff acknowledge that more needs to be done to better prepare first-time students for college-level work.

Rosenbaum argues that the way to preempt remediation and subsequent failure in college is to communicate the importance of students’ “first chance” to be successful in high school. He believes that the “college-for-all” norm may harm more students than it helps (Rosenbaum 2001). “Second chances are a fundamental American tenet. However, open-admissions policies and remedial programs inadvertently convey to students that high school is irrelevant and that there are no penalties for poor effort” (Rosenbaum 1999).

¹² Although not conclusive, Bridge researchers have found that there are many possible influences and structures that could help address this signal (see also Rosenbaum 2001).

K–16 Links

K–16 reform efforts range from elementary curriculum alignment to transfer between selective universities. This report focuses on the transition between high school and college. The failure to adequately prepare high school graduates and their subsequent need for remediation in college calls attention to the lack of alignment of standards between the two systems. While not all students who complete high school have to or do go to college, a vast majority state an aspiration to go, and upwards of 70% will actually enroll in a postsecondary institution within a few years after high school (The Education Trust 1999).

“The failure to adequately prepare high school graduates and their need for remediation in college calls attention to the lack of alignment of standards between the two systems.”

Rosenbaum argues that not all of the blame lies with the colleges, or in their failure to communicate standards. “[High school] guidance counselors do not tell students what level of high school achievement is needed for them to succeed in community college, so students are lulled into a complacency that leaves them unprepared for getting a college degree” (Rosenbaum 2001, p. 80).

Bridge Project research by Kirst and others has described the importance of signals for students. “The current fractured systems send students, their parents, and K-12 educators conflicting and vague messages about what students need to know and be able to do to enter and succeed in college. For example, [Bridge] research found that high school assessments often stress different knowledge and skills than do college entrance and placement requirements” (Venezia et al 2003, p. 2).

The roots of this problem first began when the U.S. created two separate mass education systems (K–12 and higher education) that rarely collaborated to establish consistent standards. Historically, economically disadvantaged students are overrepresented in non-honors courses and do not receive college admissions-related information from either school or non-school sources (Kirst and Venezia, forthcoming). According to Kirst et al, improving the policy signaling process and the alignment of K–16 policies will require mutual and collaborative actions by both K–12 and community colleges.

Perhaps most importantly, implicit in Rosenbaum’s research is the notion that people and institutions from different educational sectors should work together to communicate appropriate signals to students. Otherwise this lack of coordination can have additional detrimental effects on students: “Poor information allows many students to have high hopes but to use their high school experiences poorly, and thus they seem to be personally responsible for their failures” (Rosenbaum 2001).

Less well-prepared students are more likely to attend two-year colleges, often because they do not meet entrance requirements for four-year institutions. What students may not realize is that,

despite their preparation, where they attend college is likely to affect their chances of completing their degree. As Melguizo (2003) explains, “The results of this study suggest that after controlling for academic preparation, the type of institution attended had a large and significant impact in the odds of completion” (pp. 23–24). Next we look at issues of persistence and PPtransfer, as well as completion.

Transfer/Persistence/Completion

Another key juncture for K–16 work is between institutions of higher education. One researcher found that “70 % of recent high school graduates who begin their college careers at two-year institutions expect to earn a bachelor’s degree” (Schneider 2003, p. 57). In other reports, from one-quarter to over one-half of community college students report their *intent* to transfer (a notoriously tricky measure to track) (Cooley 2000; CCSSE 2002). Almost as hard to track is the *actual* rate of transfer for community college students.

Part of what makes this data difficult to collect, according to Choy, is that so many community college students attend more than one institution. They often go back and forth between institutions. Because most institutions consider students successful if they persist from term to term at the same institution, some students continuing their education elsewhere may get missed. As Choy notes, “Looking only at institutional data, it is difficult to track students’ success because they do not always follow a straight path to a degree” (Choy 2002).

Reported rates of transfer from two-year to four-year institutions range from 14% or 15% to about 40% (Rosenbaum 2001; Wellman 2002; Young 2002). Regardless of the actual percentage, consistently fewer students actually transfer than say they want to.¹³

Persistence and completion data is related to the issue of preparation. Additional analyses suggest that high school students who are less well-prepared for college and take remedial courses are less likely to persist, transfer, and complete their education. Rosenbaum reports that “only 13.9% of seniors with low grades attained their college plans” (Rosenbaum 2001). Bailey also sees a connection between poor preparation and lower rates of transfer and persistence. “Developmental education is a central component of the colleges’ mission to provide access; however, large numbers of poorly prepared students complicate college efforts to improve transfer and graduation rates” (Bailey 2002).

¹³ Again noting the difficulty in tracking transfer data, Wellman (2002) says that one-third of all first-time, degree-seeking students transfer within four years of enrollment—one-fourth of four-year students and 43% of two-year students. Rosenbaum’s research finds that about 60% of seniors who plan to get a postsecondary degree fail to get *any* degree in the next ten years, and the rates are worse for low-performers (Rosenbaum 2001). Young (2002) reports that 37% of students finish their bachelor’s degree in four years, and one-quarter finish their associate’s degree in two years. A recent ACE report cites that “among those [community college students] who intended to earn a bachelor’s degree, only 39% actually transferred” (Choy 2002, p. 20). Bailey finds that “less than one tenth of students who begin in two-year colleges ever complete a bachelor’s degree” (Bailey, 2002, p. 61). Schneider found that students who started at two-year institutions “are 28% less likely to receive a bachelor’s degree than comparable students who began their postsecondary career at a four-year institution” (Schneider 2003, p. 57). Although four-year completion rates are not as good as they should be, starting at a community college is considered a risk factor for completion: “Starting at a two-year institution rather than a four-year institution with the intention of earning a bachelor’s degree also was associated with a greater likelihood of leaving postsecondary education without having earned a degree (46% versus 23%)” (Choy 2002, p. 20, citing U.S. Department of Education data). Again, it is clear that there must be better coordination of signals and expectations in order to begin to improve the level of work for entering students and, therefore, their chances of persistence and completion.

There are many other examples of K–16 links in the existing literature. These include dual-enrollment programs for high school students at community colleges, honors programs in community colleges for high-achieving students intending to transfer to selective universities (Winter 2002), and forums for faculty from high schools and colleges to discuss curriculum alignment and expectations. Examples of these emerge in the research conducted for this study.

In the next section of this report, we look at the findings from research in California, including state-specific context issues for California community colleges.

EVOLUTION OF THE CALIFORNIA COMMUNITY COLLEGE SYSTEM

Context for the State

California has made great strides in aligning standards with assessments in K–12, as evidenced by the development and implementation of the Standardized Testing and Reporting (STAR) program. Unfortunately, efforts to improve compatibility and coherence between K–12 and higher education have lagged behind such efforts. A recurring theme in the interviews conducted for earlier Bridge Project research was the almost complete absence of communication between policymakers involved with postsecondary education (especially community colleges) and their policymaking counterparts in secondary education.

Clearly the lack of communication, mission, and shared history between the K–12 and higher education sectors of public education has resulted in the current state of misalignment among policies that affect postsecondary transitions to higher education. Ironically, the separation of these two systems, while intended to increase efficiency, may actually have had the opposite effect with respect to serving the K–16 educational needs of the state.

California Master Plan for Higher Education.

The Master Plan for Higher Education in California helped to clarify the role and function of community colleges in the state. The first version of the plan, which was written in 1960, created a three-tiered system of higher education:

- the University of California, a system of selective research universities for the top one-eighth of California’s matriculating students;
- the California State University, a larger system of moderately selective institutions for the top one-third of California’s matriculating students; and
- the Community Colleges, the most extensive system of institutions open to any student able to benefit from continued education.

According to the Master Plan (as summarized by the University of California Office of the president):

The California Community Colleges have as their primary mission providing academic and vocational instruction for older and younger students through the

first two years of undergraduate education (lower division). In addition to this primary mission, the Community Colleges are authorized to provide remedial instruction, English as a Second Language courses, adult noncredit instruction, community service courses, and workforce training services (<http://www.ucop.edu/acadinit/masplan>).

The Master Plan established the principle of universal access to postsecondary education in California at the community college level, where all students “capable of benefiting from instruction” were to be admitted. What resulted was two systems continuing down a path of uncoordinated policy development surrounding secondary school student preparation and success at California community colleges.

Today there are 108 community colleges in the California System. A 16-member Board of Governors, appointed by the state’s governor, oversees the 72 district, 108-campus system. But local community colleges maintain considerable discretion, and the state does not have the final say in many crucial areas. For example, there is no statewide uniform placement exam, as there is in some other states. Additionally, faculty and staff are employed by the district, not the state, which is different from the four-year institutions in California.

The Board of Governors is granted authority by the state legislature to develop and implement policy for the colleges in the system. The Board of Governors’ Regulations for California Community Colleges are published in the California Code of Regulations, Title 5, Division 6. In 2001, the California Community College system served between 2.5 and 3 million students, making it the largest system of higher education in the world.

Despite its size, it is expected to grow even larger based on projections for significant growth among California’s 18- to 24-year olds over the next several years. According to Hayward et al. (2003), “The demand for higher education is expected to grow by 714,000 students between now and the year 2010.” Because a majority of these new students are likely to begin higher education in community colleges, including large populations of Latino students, “it is expected that almost three-fourths of this growth will occur in California’s community colleges” (ibid.). There are many other issues associated with this kind of growth including budget, space, and time resource limitations, so it is likely that the community colleges will need to be at the center of policy discussions.

It is helpful to put this information in a larger context. Although for years California’s system of higher education has been a national model, it currently does not have a good record of reaching or graduating students. “California ranks 35th out of the 50 states in the ratio of baccalaureate degree awards to high school graduates six years earlier and 46th in the number of baccalaureate degrees awarded per 100 graduates” (Hayward et al. 2003). California community colleges must play a more vital role in increasing four-year college graduation rates by preparing the large group anticipated to start at community colleges and then transfer to four-year institutions, as well as providing coherent vocational education.

In the context of K–16 education, California’s community colleges have not played a significant role in any of the efforts to align policies or practices across sectors. Although there are many formal articulation agreements between the two- and four-year institutions, in their findings, Hayward et al. highlight the weak high school-community college connection and the many missing

or misaligned K–14 signals or policies. They argue that better high school-community college coordination will improve successful transfer. “Common understanding regarding course expectations, course sequencing, and student academic performance at the community college and high school levels are part of the academic connection that facilitates transfer” (Hayward et al. 2003).

Limited capacity exacerbates the problem of lack of coordination between high schools and community colleges. Those authors argue that “strengthening the academic connection between community colleges and high schools would have multiple benefits, including making expectations clear to students, sharing expertise and resources, and streamlining course progression” (ibid. p. 49).

Additionally, opportunities for faculty collaboration within and across sectors, cross-cutting work on curriculum (for example, on the California Standards Tests), improved dual enrollment, and strengthened and consistent outreach can create better educational experiences and improved completion and transfer rates (Hayward et al. 2003). It is worth focusing on and investing in these efforts because those community college students who are able to transfer to four-year schools tend to perform as well as students who enter as freshmen. Clearly the role of community colleges in California’s higher education system is significant and growing, especially for students of color.¹⁴

OVERVIEW OF CALIFORNIA CASE FINDINGS

Background/Mission

While community college campuses serve different communities and populations, as with community colleges nationally, these schools share a strong commitment to providing educational opportunity to any student who can benefit from it. From 12% to 28% of students attending community colleges already have bachelors’ or other advanced degrees; anywhere from 25% to 80% require some remediation. The commitment to meet students where they are is the most defining characteristic of community colleges and also often the greatest challenge. Below are descriptions of the campuses studied.

Sacramento City College.

Sacramento City College (SCC) was founded in 1916. As a result of a March 1964 election, it joined American River College to form the newly-organized Los Rios Junior College District. In 1970 the district name was changed to the Los Rios Community College District when the district opened a third campus, Cosumnes River College. In the fall 2000 semester, Sacramento City College enrolled 21,186 students. The student body is 58% female, ethnically diverse (42% white, 21% Asian, 15% Hispanic, 12% black) and relatively young (55% of the students were 24 years of age or less compared to 48% of community college students statewide). International students at the college come from approximately 55 different nations. As one administrator put it, “our campus is blessed with wonderful diversity.”

¹⁴ Projections for growth are greatest in Southern California and the Central Valley, areas with large Latino populations.

Cosumnes River College

Cosumnes River College (CRC) was founded in 1970 as the third college in the Los Rios Community College District. Although it enrolls over 16,000 students, it has the feel of a small campus. The student population is just over half of that of its sister colleges, American River and Sacramento City. There is a physical center to the campus, and a busy student center, which probably allows for more casual interaction than at the other two campuses in the district. On average, there is less ethnic and racial diversity at CRC, and, like other campuses, there are more women than men.

According to the district research office, 35% of 1999 graduates from the top 25 feeder high schools attended a Los Rios college in the fall of 1999 (LRCCD Research Brief, January 2001; LRCCD High School Graduation Data).

Student View of Institutional Mission

The reasons for attending community colleges are as diverse as the student body. In the focus groups, researchers heard students cite location, cost, specific programs, lack of other options, and convenience. Several of these responses (and others) mirrored the mission of community colleges cited above to provide convenient, low-cost education. Consistently researchers also heard students refer to community college as an opportunity for a “second chance” at a college education. Below are some typical student explanations for their choices.

I chose CRC because I live five minutes away, and I also went to high school across the street.

I came here because I really didn't know what I wanted to do yet. And it's like the only school that's somewhat near me...and it's cheap.

I didn't have a high school diploma, and I really needed to do something, and I hadn't had a job, didn't have any job skills...so I came here.

Based on focus group data, it appears that the message of access, convenience, and second chance seems to be reaching students before they apply to community college. However, they seem to know considerably less about enrollment and matriculation requirements.

Below we describe in greater detail some of the logistical aspects of admissions, financial aid, tuition, placement, and preparation issues, as well as student understanding of these policies.

Admission/Enrollment

Because the institutions in this study, like most community colleges, maintain an open admissions policy, admissions staff do not perform a traditional gatekeeping role. While they do some recruiting at area high schools, the admissions office serves primarily as the point of entry for enrollment and registration, and is often the first unit at a college to communicate placement requirements. Students can show up the day before classes start and enroll for that term,

providing they have met certain basic requirements.¹⁵ This ease of enrollment embraces both the mission of the institution—providing opportunity for all—and the challenge of working with students who may have little sense of what they want.

In compliance with state mandates, both Sacramento City College and Cosumnes River College have an open admissions policy. Students may apply in person or through the mail. The application can be downloaded at the colleges' websites, is distributed to all feeder high schools, is available at various locations on campus, and is mailed to individuals upon request. At the time data was collected for this study, both schools had plans underway to provide online registration within two years time.

Once an application is received, applicants are sent a letter informing them of the next steps to take in order to matriculate to the college. Since admission is open, students may apply at any time of the year. The college recommends (but does not require) that new students under the age of 21 submit high school transcripts.

At the community colleges studied, recent high school graduates made up a significant subset of enrolled students. There are reports of some community colleges trying to attract recent high school graduates who might otherwise start at four-year institutions (see the *New York Times* article by Winter on higher achieving students attending community colleges). The growth in enrollment of recent graduates has also raised concern because it highlights their lack of preparation, a trend that will be discussed in greater detail later on.

Given the high percentage of recent high school graduates attending community colleges, the institutions in this study tend to have relationships with area or district high schools. Admissions staff members provide general orientations to high school students about community college. In many cases, existing programs and partnerships (see “Outreach/Special Programs/K-16 Links” later in this report) are the point of contact between high school students and the community colleges.

Unlike community colleges in other states, which recruit as many students as possible for their programs, most California colleges and community college districts generally do not have aggressive secondary school outreach practices. There is even a funding disincentive in place for recruiting too many new students. Even when colleges go “over cap” by enrolling more students than projected by the Chancellor’s Office (using past enrollment figures), the overall apportionment is not increased. Therefore, the average amount the college gets paid per Full Time Equivalent Student (FTES) is lowered, meaning that less is spent on each student.

Thus, unless a community college is experiencing declining enrollment, there is no economic incentive to increase enrollment by recruiting more students. This policy is particularly significant given that the number of students seeking admission to California community colleges is expected to grow by over half a million students over the next ten years (Hayward et al 2003).¹⁶

The combination of open admissions and increasing enrollments poses a dilemma for community colleges. They must still find a way to maintain academic standards for college-level work. As

¹⁵ The most common requirements for admission are a high school diploma or GED, or being 18 years or older. For high school students (and in some cases international students) there are often different procedures.

¹⁶ Community colleges with large numbers of Latino students could be harmed the most, as Latinos are the fastest growing population of college students.

one Bridge Project researcher noted, the open admissions policy may convey the impression that any student may register for any course. Also in effect, however, are mandatory placement tests and course placement policies that require remedial education prior to college-level enrollment.

. "California community colleges must still find a way to maintain academic standards for college-level work despite open admissions and increasing enrollments."

Although there are courses that don't require passing the placement exams, some disciplines outside of English and mathematics require certain performance levels on those exams (for example, a certain level of reading comprehension for a history course). In many community colleges, open admissions is preserved by ensuring that the first course in a prerequisite sequence is open to students of all abilities. In general, staff members are committed to the open admissions policy and philosophy, as there are always examples of students whose lives are changed by the experience. As one instructor noted, "As a community college, we are prepared for anyone. We really are."

Tuition

While California community colleges do not charge tuition, until recently there was an \$11 per unit enrollment fee (well below the national average). Given the current budget crisis in California, however, this fee was raised to \$18 per unit for fall 2003, still lower than the national average. In addition, there are often other fees that community college students must pay for things such as parking, technology, student activities, etc. All the institutions in this study also charge higher fees for out-of-state and international residents. In most cases, some of the applied programs such as dental hygiene have higher fees associated with them.

Financial Aid

Both of the institutions in the study have financial aid offices that coordinate federal, state, local, and institutional support for all students who qualify. All of the campuses have seen an increase in demand for aid in recent years. The downturn in the economy and the "echo boom" (children of baby boomer-aged parents) are offered as explanations. One of the most difficult aspects of the job for community college financial aid officers is the timing of aid requests. Unlike most four-year college students, many community college students don't know several months in advance that they need to apply for federal and state financial aid. Aside from a general lack of awareness about filing deadlines, many students don't decide to attend community college until right before the academic term begins. It can come as a surprise when students realize they will not be able to get financial aid immediately upon enrolling.

Another point of concern is financial aid for developmental or remedial education. A student who requires several terms of financial aid for non-credit work must be careful not to use up eligibility for government support. Currently, there is a 150% rule for federal funding that

allows for additional pre-credit coursework and provides additional eligibility, provided it compensates for secondary-level coursework.¹⁷

Placement

Placement policies highlight several of the important disjuncture issues raised by the six-state Bridge Project. Our findings showed that a majority of students were unaware of the need to take placement tests before registering at any college or university, let alone what the content of those tests might be. In our broader research, community college students were particularly surprised to learn this, given the general understanding that anyone can attend a community college. Placement tests communicate, indirectly and belatedly, that there are standards for college-level work, and many students are surprised when their skills are assessed below that level. One student explains what she discovered in the testing process:

I took an assessment test and as everybody knows, I do really horrible at tests because I have test anxiety. So I'm placed in classes that are like really way too easy for me. Like when it comes to just assignments and stuff like that. And then I was out of math for three years. And so I know that the math, I was placed correctly, but the English I was not placed correctly because of the time constraint and all of that kind of stuff.

Assessments vary from state to state and from campus to campus (and in some places from department to department). In most places, reading, writing, and math skills are assessed. California's definition of assessment is broadly inclusive and is a product of Title 5. While it affords individual colleges a fair amount of latitude in their choice of assessments, the freedom to choose also results in some confusion for both students and staff. Individual campuses and districts may choose assessment instruments from the Chancellor's list, or they may use other forms of assessment (including instruments they have developed themselves such as writing samples). However, these must have gone through content review, criterion or consequential validation, and other tests for reliability and non-bias as appropriate (see California Community Colleges Matriculation Standards/Regulations, and California Community Colleges Chancellor's Office Assessment Standards).

There are no standard placement tests in the California Community Colleges, and colleges in the same district often use different placement assessments. There is a list of approved assessments from the Chancellor's Office. The placement process is proscribed by Title 5, which disallows any single instrument from being used to place students into the curriculum. Instead, multiple measures must be used. In practice, campuses often use an assessment test score in conjunction with other predictors of student success, such as high school GPA, recent related coursework, etc. These policies create challenges and confusion at all levels, as one administrator explains:

You know, every time we go to explain either to the high school or to the four-years the kind of legislation that now we live under in terms of our assessment process [for placement], they just shake their heads. They cannot believe the rigorous guidelines that we have to fall under with this stuff. And how much time

¹⁷ The 150% rule covers support for the number of credits for a degree (100%), plus additional support (up to 50%) for students who need remedial courses above the elementary level.

and money and energy that it consumes just to keep ourselves floating in the assessment process.

Although Sacramento City College (SCC) and Cosumnes River College (CRC) are in the same district, they do not use the same assessments for placement. For English and math, SCC uses Education Testing Service's ACCUPLACER (Reading Comprehension and Sentence Skills subtests for English, and Arithmetic, Elementary Algebra, and College Level Math subtests for math). For English as a Second Language, the college uses Levels of English Proficiency (LOEP) along with a campus-administered writing sample. Since the ACCUPLACER and LOEP tests are available on-line, students may drop in and take the assessments on a space-available basis from Monday through Thursday or on Saturday.

Approximately 10,000 students per academic year take placement tests at SCC's Assessment Center, and each student takes an average of 3.2 tests, for a total of about 32,000 tests administered annually. Students are required to pick up their placement test results in person to protect confidentiality, and results are not released to anyone other than the student, not even parents.

Cosumnes River College uses placement tests approved by the Chancellor's Office (along with other multiple measures, as required by Title 5) to place students in English and math courses. For English, the college uses the CTEP or College Test for English Placement. For math, it uses the MDTP or Mathematics Diagnostic Testing Project, an assessment also used at CSU and UC.

Approximately 6,000 placement tests are administered per academic year through the CRC assessment center. Since it does not have a dedicated testing facility, the center schedules classrooms on an as-available basis for placement tests. The tests are free-of-charge and are administered on a regular, well-publicized schedule. Students may retake the placement test twice within a six-month period. In line with Title 5 regulations, all placement instruments have been articulated with the college curriculum, and minimum passing scores have been established through a research-based process.

As Kirst (2000) points out, one of the shortcomings of the present placement testing system used by community colleges is its lack of standardization and signaling, which can be overwhelming for students who are often required to take multiple assessments. "In the southeast United States, for example, in 1995 there were 125 combinations of 75 different placement tests devised by universities with scant regard to secondary school standards." Given that most recent high school graduates have already faced several standardized tests in high school—one of the consequences of extensive K–12 reforms in California—it is not clear how students are made aware of and keep track of the many assessments they are expected to take.

At the time of data collection for this study, the three sister colleges in the Los Rios district each used different placement tests for math, English, and ESL, and did not have a cooperative agreement to honor each other's placements. Inevitably this creates a confusing situation for students.

Many of the staff were asked by researchers about the possibility of using one of the existing K–12 statewide assessments for placement. California already has high school assessments that measure students' skills and abilities. However, none of the respondents had considered this option, even those who had been part of committees responsible for exploring possible assessment tools for placement at their schools. While a few acknowledged this possibility, they

indicated that the K–12 statewide assessments would likely be used in conjunction with, but not in place of, their existing placement exams. Consequently, any policy change would not reduce the number of assessments students face in the transition from high school to college.¹⁸

One administrator suggests what is needed to remedy the situation:

It is clear to me that if anything is going to be done it needs to be at our initiative and with our perseverance. It is not going to come the other way [from K–12] or it hasn't. Perhaps that will change. I think the key is getting faculty departments together. It needs to have administrative support even though it cannot come from the administration.

However, even if faculty could agree to use the California K–12 assessments for placement into the community college curriculum, the state examination would still have to go through community college question-by-question content validation, and the cut-off scores would have to be normed and validated on a campus-by-campus basis, as required by Chancellor's Office standards.

Students were also asked about placement and the assessment process. Interestingly, student reaction to the placement process in the focus groups was varied. While some students talked about being surprised by the placement, few reported being upset about the requirement.¹⁹ Particularly for recent high school graduates, testing and assessment are a very common part of their educational experience. As one student explains,

When I took [the] assessment tests, they gave the math portion...last...So I just kinda like filled in answers so I didn't want to take it anymore. So then when I got my test results back it said that it was inconclusive and I had to take another one. So I took another one. And I did pretty good on that one. So they put me in a math class. And I was in two classes, I had to take two math classes before I could take the statistics class. And those two classes were pretty much a waste of time.

Given the responses in the student focus groups, the fact that the placement test could often be retaken seems to have lowered the stakes for most students.

Bridge Project researchers also found varied reactions among students in several states to the outcomes of the assessment. Some staff report students being stunned by their poor performance on the placement tests. For some students, this is the first time they realize that most of the courses they can enroll in are college preparatory, and therefore cannot be taken for college-level credit. It is at this point that students become aware of their lack of preparation for college, and in some cases, the consequences of not working hard in high school.

In California, however, most students said they were not concerned about their placement test results. They understood the need for them and were generally fine with where they were placed. In the words of one student:

¹⁸ The California State University is using K–12 assessments (for example, Grade 11 English and math tests) for freshman placement. Perhaps community colleges will consider that option.

¹⁹ Students who had access to their local community college assessments while they were still in high school were less likely to be surprised. Some institutions have partnered to expose students to expectations from the community colleges. Some of these partnerships will be described later.

I had to] start back with English at the remedial college level, which is still high school level. But now because of the steps I had to take, I mean in my music classes, extra credit, I write essays. In my English 1A class I'm writing essays and getting A's and B's....And I can see that if you take those steps it gives you the strength and it makes the class a lot easier.

Regardless of when students become aware of the community colleges' placement requirement, it is clear that all of the colleges are communicating it to students soon after admission, since it is often required before students are allowed to register for courses. The responses below are typical of students' recollections as to when they first learned about the placement requirement:

All I know is I was supposed to take the assessment test or I couldn't take English or math.

My best friend told me, and through high school in my junior and senior year I always heard grades above me talk about goin' to CRC and takin' their assessment tests or going to a UC and taking their tests.

The teachers in high school told me.

In our schools they had announcements, like in the career center they had posters and bulletins that you need to take the assessment tests and the dates that you could take them.

“Placement tests play an important role in community colleges, particularly given the absence of admissions entrance examinations.”

Placement tests play an important role in community colleges, particularly given the absence of admissions entrance examinations. While California's public educational system places tremendous emphasis on the K–12 state assessments, they are not used to guide placement decisions at either community colleges or postsecondary technical schools. They are used primarily to reward or punish elementary and secondary schools depending on how well they meet achievement goals. In fact, state law specifies that these K–12 tests *cannot* be part of high school students' transcripts. Consequently, community colleges could not find out the results even if they wanted to.

Advising/Counseling

Community college advisors spend a majority of their time on scheduling and academic planning.²⁰ Inevitably, there are too few advisors and counselors for the several thousand students found at most state community colleges. At some colleges, there is a more formal distinction drawn between advisors and counselors: counselors usually possess different professional training and deal with personal student issues.

Advisors are prepared to work with anyone who comes through their door, but often have limited options to offer students who are not yet ready to handle college-level material. The issue of academic preparedness is central to how well staff members can serve their students. Every day community college staff struggle with the best way to preserve the mission of the institution while confronting the practical issues of underprepared students.

Although some students complained about not knowing what classes to take or what requirements to meet, others reported that help was available provided they sought it out. Even so, most of the respondents indicated their campuses could use more staff for advising. Below are a couple of student responses about how they first learned what was expected of them at a community college:

Totally the counselors, I mean they pretty much guided me the whole way...my interest was business, and my counselor was telling me that along with the business courses, I would have to take some general education courses for me to get my Associates, and entrance requirements to get into a four-year, so they pretty much helped me set it up.

It was initially a counselor that was like, "Here, you've been out of school for a bit. This might help you." Even encouraged me to go back. I was one point away from being eligible to take English 1A. She was like go back and take the test again. I'm sure you could get one more point. And sure enough I did. So it was mostly the counselor.

Remedial Education/Overall Preparation

As is clear from our literature review and the early findings from the Bridge Project, the level of academic preparation of community college students is of central importance. Not only is it a constant reminder of the lack of alignment between the K–12 and postsecondary educational systems, but it presents a tremendous challenge to those charged with addressing the gap.

All community colleges offer remedial or developmental courses.²¹ This function has been part of their mission from their inception.²² In the past, the assumption was that returning students

²⁰ Students can be exempt from counseling if they meet the following criteria: 1) they possess an associate degree or higher, or 2) they satisfy at least two of the following and do not wish to participate in counseling: they want to upgrade their job skills; they are enrolled in fewer than six units; they are concurrently enrolled in another post-secondary institution; or they do not possess a degree or have an occupational objective.

²¹ For further information and discussion of remedial/developmental education, see Grubb (1999) and Koski and Levin (1997).

who were rusty in their skills would need opportunities to review basic concepts. However, in recent years it has become clear that many recent high school graduates, as well as many returning students, have never learned the basic skills in the first place.

On all of the campuses in this study, staff were asked to describe the characteristics of entering students who lacked basic skills. Math faculty at Cosumnes River College reported that students entering from high school often placed two levels below the highest math class they took in high school. CRC math instructors are now meeting regularly with high school math instructors to try to develop a uniform teaching approach.

Researchers found numerous other local, informal partnerships had formed as a result of the increasing numbers of underprepared high school students entering community colleges. This trend is primarily responsible for the changes in and strengthening of placement policies. Although the reported remediation rates range from small minorities of students in some community college programs to sizable majorities in others, all of the colleges consider remediation an important issue.²³ Below is some data on remediation at the campuses in our study.

The course numbering sequence at Sacramento City College shows all remedial education in the 200–299 range, which includes non-degree applicable credit courses. Generally, remedial coursework is offered in math, English, and ESL, although there are other non-degree applicable 200-level courses (e.g., some human career development courses, tutoring, etc.). At SCC, one-quarter of the math sections offered are considered remedial, while approximately two-fifths of the English and ESL sections are considered remedial.

One administrator explained that these numbers would actually be higher if not for the large and well-regarded adult education program in Sacramento, which remediates many students before they enter Sacramento City College. At CRC, one-third of the math sections are considered remedial, while nearly two-thirds of the English and English-as-a-Second Language sections offered are considered remedial (39% of English, 77% of ESL).

The students also talked about their lack of preparation. Some expressed frustration with their high schools, upset that they had been passed along or told that their performance was acceptable. Several students focused on their behavior and skills, rather than content knowledge. Some responses:

In my high school they didn't prepare you for college at all. Well I had college prep classes, but my school, they're so quick to pass you ...when I got here I was so used to bein' in a fly-by [easy] class, I was like, OK, these teachers, they don't care if I come or not. I'm not gonna come. But when I got my transcript it was a totally different story. I was like, they're not playin' here.

I felt that my study skills were a problem. When I was in high school, I never learned how to study. And now, I have to.

²² California State University requires students who do not complete remediation within a set timeline to enroll in a community college and leave CSU.

²³ One of the challenges of this research is getting accurate counts of remedial courses and enrollments. Given the growing numbers of students taking remedial courses in college, most community colleges now conduct regular institutional research not only on enrollment, but also on student persistence and completion.

I wasn't prepared...the first couple of semesters here I was spending like hours and hours and hours of studying. And I talked to an EOPS counselor and she said, well, you don't have any study skills. So she had me take...study skills. And now I'm doing much better. You know, I don't have to study ten hours a day just to get a B. But I wasn't prepared. I thought I was, but I wasn't.

There were also students who felt prepared for college and who attributed their success to it.

I felt like I was really prepared from high school. But it was hard for me my first semester. I didn't want to be here. I really wanted to be at Berkeley. And my grades weren't as high as they were in high school. But I got the hang of it here and I said you know, I still want to go to Berkeley, and so in order to do that I need to get out of here first. So, it was really rough. Just because a community college, like, my friends claimed it had the reputation of being an extension to high school, and it really isn't. And ... I was really grateful that I came here because ... the atmosphere... really brings you down to earth. So, I thought my transition was like, it took a while to get there, but it's good.

I think I was well prepared for college. Because in high school I was really good. I wasn't skipping any classes like my friends did. They would go like, let's go to the movies, let's skip this class. But I thought that it's wrong, if you're in high school and you want to graduate and get a good grade you have to work hard. And I think I was really prepared. It's helped me to be good in college.

Remediation, and the related issue of preparation, will continue to be a central focus for community colleges. It will also provide the best opportunities for partnerships with K–12 and the four-year institutions. Examples of K–16 links are described below.

Transfer/Persistence

Although intent data is difficult to track in community college, more and more students in two-year colleges aspire to complete their degrees at four-year institutions. Nationally, 70% of recent graduates who enter community colleges aspire to get a bachelor's degree, but many fewer actually complete them. (Schneider 2003). Many of the students in the focus groups described plans, often very specific, for getting their bachelors' degrees. One challenge to tracking intent is that students don't need to complete the associate's degree to transfer to a bachelor's program. There are various agreements between two-year and four-year institutions regarding the transfer of students. In some cases, the articulation agreements are quite formal, offering statewide standards for all public institutions. In others the partnerships are local, between two institutions, including some private colleges.

In California, the Master Plan for Higher Education charges the UC and CSU systems with giving preferential admissions to qualified California community college students. Generally a student is considered qualified if they have completed 56 transferable units with a grade of C or better. There are no specific intersegmental transfer policies—each community college or district must work out articulation agreements with individual UC and CSU campuses. Some individual community college campuses and districts have developed Transfer Articulation Agreements and

specific guaranteed admissions plans with public and private four-year colleges and universities. Both SCC and CRC have multiple articulation agreements with institutions throughout the state. For both colleges, CSU-Sacramento is the most popular place to transfer.

In addition to individual Transfer Centers in California, there is an official statewide repository of transfer information in the form of a web-interfaced database, called ASSIST (Articulation System Stimulating Interinstitutional Student Transfer). Designed for student as well as professional use, this database lists by institution accepted transferable courses, and specific articulation agreements between two campuses. All public postsecondary institutions in California are included in the database, but private/independent colleges are not.

Persistence and completion data can also be difficult to track, in part because student intent data is difficult to track (e.g., Did that student intend to take only one class?). Most community college researchers try to track term-to-term persistence. As noted in the literature above, generally persistence rates are lower at two-year than four-year colleges. The explanations offered include the different populations (age and background), different financial and family commitments, different levels of preparation, and different intentions (some students leave after completing a coherent set of vocational education courses). It is clear, however, that students who are required to take remedial or developmental coursework are less likely to persist or complete.

Community college students do not often follow a linear path through their postsecondary education. In an effort to understand better how students in the Portland Metropolitan Area were progressing, several postsecondary institutional researchers studied student paths. They found not only that two-thirds of students' followed a "swirl" academic path (moving in and out of several institutions), but that the nature of that swirl affected the students' progress and attainment (Bach et al. 2000). Perhaps not surprisingly, within the current system, those who followed the traditional, linear path were most successful in attainment.

Outreach/Special Programs/K-16 Links

All of the community colleges in this study have relationships with secondary schools, from formal articulation agreements to informal relationships between individuals on the campuses. All of the institutions provide opportunities for high school students to get to know the community college. In most cases, high school students can enroll in community college classes on campus (with appropriate permission and a skills assessment), can take community college courses and receive college credit for them at their high school, and can take one of the community college assessments in high school (to give them a sense of community college standards), among many other options. Unfortunately, there are limitations to these partnerships. As one administrator notes,

I think people [in the high schools] are overworked...they're just terribly overworked....Teachers are having incredible demands [placed] on them with the extra pressures from the accountability and the testing, and popular opinion of education systems being a sorry sort.

Despite multiple points of connection between systems, there was a very clear message from all of the community college respondents that the K-12 reforms— including new academic standards and assessments in the high schools—have had very little or no bearing on what

happens at the community colleges. The colleges are still going to conduct their own assessments of students' skills and abilities; they want no part of the myriad reforms going on in K–12. Part of the reason for this is that many community college administrators know very little about the K–12 reforms, and often their limited information comes from having children in the system or from the local media.

“The K–12 reforms—including new academic standards and assessments in the high schools—have had very little bearing on what happens at the community colleges.”

One thing that became clear in the course of this research is that although there are few, if any, formal K–16 efforts state- or system-wide, there are many local partnerships between K–12 and the community colleges. Below are some examples.

- At SCC, the Assessment Center offers placement tests during the spring at local high schools through a program called Senior Assessment for College (SAC). High school seniors are invited to complete basic skills assessment in math and English on their high school campus, and then are invited to attend an orientation at Sacramento City College. Once they complete the process, which includes some counseling at orientation, they are granted priority registration. Approximately 1,200 students were assessed at 16 local high schools in spring 2001.
- English 1A and 1C are taught regularly by Sacramento City College faculty at neighboring McClatchy High School. The college is limited to offering only coursework that is above high school level at the high school site, and at times it is difficult to get enough qualified, interested students to enroll in these classes. Still, the English department plans to offer classes at other local high schools in the future.
- Sacramento City College has many innovative programs with four-year colleges and universities. CSU Sacramento offers students at Sacramento City College the chance to take one free class through the Crossover Enrollment Program. This program allows students who are enrolled in nine units at SCC to enroll in one class at CSUS for no fee other than the cost of books and materials. UC Davis allows students who have fall semester Transfer Admissions Agreements (for guaranteed transfer) on file to take one free class the spring prior to their full-time enrollment at UC Davis.
- At CRC, various faculty members interact regularly with high school teachers, especially in the areas of math, English, and ESL. The math instructors discuss high school graduation requirements and better ways to articulate high school math with college math. Math instructors at both levels have also discussed approaches to teaching math with the goal of coordinating services.

The college English faculty has a long-standing relationship with local high school English teachers. In the past, high school English teachers would suggest course placement for former students now enrolling in English courses at Cosumnes River College. When the

college realized this practice was contrary to Title 5 regulations, it was discontinued, but the two groups of English instructors continued to meet. Currently, the high school instructors in the Elk Grove Unified School District are hired as readers to evaluate and norm the final essay examination for CRC students enrolled in English 57. In addition, many of the CRC courses offered at the high schools are taught by high school instructors who meet the minimum qualifications to be community college instructors.

These various partnerships, both formal and informal, are good examples of practical ways to strengthen K–16 articulation. It is clear that there are many people who are committed to finding ways to make students' educational experiences a series of successful transitions. While at present these efforts remain primarily local in scope, they provide models for possible wider-ranging plans. One of the respondents sums up the sentiment expressed by many others in this study:

Probably just like everybody else [I believe it should be] a seamless flow for the students. The content, the knowledge they had in high school, should be a foundation for them to be successful in college. That transition should be as smooth as possible. They should be able to walk into those [college] classes and feel confident.

SUMMARY

Below is a summary of findings from the study. These were based on data from the Bridge Project, and augmented by findings in other research literature.

- There is a growing population of younger students on community college campuses. Some are recent high school graduates, while many others have not completed high school. The community colleges have increased opportunities for students to take college-level courses while still in high school. There are also examples of other arrangements, such as making these courses available to home-schooled children.
- The mission of the community college was evident in the two schools studied. They offered students low-cost, convenient alternatives in an educational environment of open access and high standards. Staff and faculty were clearly committed to working with students of all abilities.
- The growth in the percentage of younger students attending community colleges has highlighted the lack of preparedness of many high school graduates. Unlike older returning students who tend to be a bit “rusty” in basic skills due to the time that has elapsed since they graduated from high school, some recent high school students have never mastered the material. As one California staff member says, “We’re seeing students coming out of high school [who are] not ready for community college work, and community college students not ready at the CSUs.” Additional remediation is necessary, but the disjuncture in academic preparedness highlights the need for better alignment of standards and expectations.
- Many students entering community college do not seem to appreciate that they will not be able to handle college-level work if they didn’t achieve at a certain level in high school. As one instructor explains,

The transition between high school and the community college is an odd one for many people. For some students, the first year of community college is grade 13. It seems that they are just continuing on—all of their friends are coming here, they are just moving along with the pack. There's not even necessarily (for some of the first-year students) an acknowledgement...that this is even college.

- Despite a lack of information about the multitude of required placement tests, students generally weren't upset about having to take them. Although some mentioned being unhappy with the results, fairly liberal policies to retake exams allow for some negotiation.
- The connection between two-year and four-year colleges is becoming more formal in some places. While articulation agreements are common, only co-admit or dual enrollment arrangements produce specific curricular discussions about standards and expectations among members of the campuses.
- Many faculty talk about the tension of being “in-between.” Community colleges can be perceived as an extension of high school and the start of a bachelor's degree; they accept anyone who enters, but have advanced and restricted entry programs. Most believe strongly in the community college mission, but acknowledge the difficulty of balancing it. One administrator compared community colleges to Janus, the two-headed Roman god of gates and doors, who must look in both directions—behind and ahead. The administrator said the community college must, “look in two directions. Any change we make in this level has to work with the sequence of getting people ready for transfer as well.”
- There is a general lack of awareness on the part of administrative staff and faculty of K–12 reform efforts—especially standards and assessments faced by high school students, and in some cases also K–16 efforts. What community colleges know tends to be a result of general perception (e.g., media coverage) or of personal connection (e.g., child in the K–12 system). There is little sense of any statewide formal efforts to work between the systems, as for example, by using one of the high school statewide assessments as a placement tool. However, individual partnerships between specific community colleges and high schools seem to be flourishing.
- Students speak positively about their choice to attend community college, usually highlighting convenience, cost, and smaller class size. They note that there is no “handholding,” but that resources are available to those who seek them.

POLICY IMPLICATIONS

The study's findings point to the need for a number of changes in policies and practices that affect California students' transition from high school to college.

- **Track signals to students regarding expectations and requirements for entering community college.**

High school students are getting the message that two-year institutions are open to everyone, but many do not understand what is expected of them in college, nor the level of academic preparation required of them to handle college-level work.

- **Track more carefully the signals around placement.**

The issues surrounding community college placement were significant in this report, but are often only addressed in other research as it relates to remediation. Unlike in other states, California students in this study were not surprised by placement requirements or test results. It may be that some of the early signals students are receiving from high schools, friends, and counselors have helped communicate some of these expectations, although not for specific content and skills. It is worth looking more closely at how that information is communicated to students and whether this makes a difference.

“It is important to communicate clearly what is expected of entering students.”

The large number of secondary school students now entering the community college system in California warrants that K–12 and community college educators place greater emphasis on the role of placement tests before students graduate from high school. It is clear that remediation lowers a student’s chances of completing college, increases costs, and is not the best way for a student to start college, as remedial students are less likely to persist. Given these factors, it is important to communicate clearly what is expected of entering students.

- **The legislature should repeal the ban to include California standards tests in high school transcripts.**

Community colleges can use these tests for placement information, which would not only reduce costs, but would prevent surprises for students unaware of postsecondary placement. In addition, if students are aware that colleges and universities will have this information, they might be more likely to try harder on the standards tests, providing more reliable data to both high schools and colleges.

- **Study more deeply the issue of the lack of academic preparation.**

The lack of adequate preparation for college is a growing and persistent issue, particularly for recent high school graduates. This report highlights some of its consequences. However, there is need for more research on the most effective ways to use existing points of connection and develop new ones between the K–12 and community college systems in order to address this problem.

- **Create a larger role in K–16 work for community colleges.**

Few community colleges have had any role in state and national K–16 reform efforts. It would appear that the informal and local partnerships with K–12 would make community colleges prime candidates for intersegmental coordination. However, any proposed solutions will have to address the fact that community colleges are already strapped for resources, and will need additional funds to take on new leadership roles.

- **Community colleges should review the K–12 state standards and assessments.**

Each subject matter exam for the California Standards Test has five levels (advanced, proficient, basic, below basic, well below basic). Perhaps one of these performance levels could be equated to community college placement standards for credit-level, non-remedial courses. After taking the test in tenth or eleventh grade, high school students could be advised about where they are likely to place in the community college curriculum, based on their current academic achievement. The senior year could then be used for intensive academic preparation to avoid community college remediation.

- **Send clearer signals about realistic transfer possibilities.**

Despite a decrease in the skills and abilities of many entering community college students, many students who enter a two-year institution expect to transfer to a four-year program. Rosenbaum (2001) talks about how to temper those aspirations and to provide alternatives. Students need to understand not only what it takes to succeed in transfer, but that basic literacy skills are necessary for occupational and vocational programs too. While higher aspirations can influence attainment, a lack of good information about what it takes to transfer, particularly before entering community college, means that many students are not persisting or completing, despite their aspirations. Good data is needed on persistence and completion, and data on student aspirations will help to complete the picture.

- **Conduct more research on the community college role as the point of entry for specific populations.**

Community colleges are the place where a majority of first-generation students and students of color begin their college education. Since students from these groups are expected to begin attending California community colleges in increasing numbers, it is especially important to understand the progress of students of color, immigrant students, and low-income students, and how they navigate the system and enter college.

- **Collect more and better data on students moving in and through community colleges.**

Data are notoriously difficult to collect on community college campuses. More and more colleges have formal institutional research operations, and more states are developing or refining statewide data-sharing systems. Even so, the transitory and “swirling” nature of student enrollment means that some of the data collection problems will continue to be

difficult to address. The California K–12 system plans to use student identifiers to track cohorts of students as part of the federal No Child Left Behind compliance.

- **Focus a greater percentage of higher education research on the community colleges.**

Not enough research is being conducted on California’s community colleges. As a result, there are many gaps in current knowledge. Some areas for future study include: the links between community colleges and other educational segments; student progress within and between multiple institutions; the historical tension of access and standards; the faculty and staff experience at two-year vs. four-year institutions; and other policies and practices that affect successful delivery of education (e.g., financial aid policies, programs for at-risk students, etc.).

California community colleges play a central role in the United States system of postsecondary education, yet the amount of research on community colleges is not commensurate with that role. Given the growing number of students participating in a community college education—particularly students of color, low-income students and first generation students—it seems clear that this population and these institutions warrant greater attention.

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Section 3

Using a K-12 Assessment for College Placement

by Michael W. Kirst

(Editor's Note: This paper benefitted greatly from a speech given by Dr. David S. Spence, executive vice chancellor of California State University, at a conference sponsored by the National Center for Higher Education and Public Policy, Los Gatos, California, June 2003.)

Across the nation, high percentages of high school graduates are entering college, but increasingly they need remediation to succeed there. As a result, colleges are expending a great deal of resources on remediation instead of college-level education. At the same time, large numbers of students never get past the first year of college because of inadequate high school preparation, particularly in mathematics and language arts.

In the California State University (CSU) system, with 408,000 students on 23 campuses, remediation rates have risen over the past decades, along with concerns among the public and state policymakers about the high number of poorly-prepared students entering CSU from California public high schools. High remediation rates raise questions concerning the quality of public schools, and about the K–12 content standards and accompanying state tests developed by the California State Board of Education.

Furthermore, the high level of CSU remediation is expensive. About 25,000 out of 40,000 first-time CSU students need some form of remediation. The university must absorb the cost of providing classes not offered for college credit. Parents and students bear additional expenses because remedial courses do not count toward graduation; consequently, students take longer to finish degrees.

“CSU is the first statewide system to adopt a K–12 state assessment as its own placement test for first-year students.”

In the mid-1990s, this problem prompted the CSU Board of Trustees to establish the Trustees' Subcommittee on Remedial Education to explore solutions. As a result, the state has modified the exam administered to all eleventh graders to better align it with the academic preparation required of students to enter CSU and to succeed in college. CSU is the first statewide system to adopt a K–12 state assessment as its own placement test for first-year students. This is an important breakthrough in K–16 assessment policy, and it promises to provide clearer signals to high school students who have been uninformed about the discrepancy in standards between their high school grades, tests, and CSU placement.

This policy can also help reorient the high school senior year so it becomes an intensive academic experience that supports students' placement in college-level classes rather than in remedial ones. In short, this is a rare collaboration between secondary and postsecondary education in California to solve a mutual problem that neither sector can solve on its own.

Evolution of the Problem

By state policy, CSU accepts the top third of California high school graduates, most of whom have a 3.0 average in the same number of academic courses that are required for entering the system.¹ Except for students with high SAT scores, however, all incoming CSU students must take placement tests in English and entry-level mathematics before they can enroll in any classes their first semester or quarter. Students who don't meet the cut-off scores on either test must take and pass remedial courses before enrolling in the typical course sequence that leads toward the general education degree. If test scores are particularly low, a student may first need to pass a lower-level remedial course, then advance to a higher-level one.

The CSU central office determines the cut-off scores, but each institution determines the specific process of remediation and development, including the specific courses and number of levels that must be completed. At Sacramento State, for example, placement tests serve as gatekeepers to Math 1 and English 1A, which begin the typical course sequence in those subjects. Students take the math test only once: it is not re-administered after completing remedial coursework as a check for mathematics understanding.

Currently, more than half of entering freshmen taking the CSU placement test require remediation in English or math before beginning college-level coursework (47% fail English, 37% math). It was numbers like these that led the CSU Board of Trustees to establish the Trustees' Subcommittee on Remedial Education. In January 1995, a study committee presented the trustees with background information on remediation in the CSU, along with several preliminary recommendations.

Initially the trustees proposed that by fall 2001 all regularly admitted freshmen should attain proficiency in English and math. However, after a series of public hearings, the CSU trustees established benchmarks for a 12-year period for reducing remediation. The first of these targets was that, by 2001, the need for remediation for regularly admitted freshmen would decline by 10% from 1996 levels, and by 2004 it would decline by 50% from 1996 levels. By the trustees' final target date of 2007, only 10% of the regularly admitted freshmen would need remediation.

Two other proposals surfaced in 1995 to mitigate remediation. The first was to delay admission to students needing remediation until they could demonstrate they were prepared for college-level work. The other was that CSU bill high schools for the cost of remedial coursework to bring students' performance levels up to college-level expectations. Neither proposal was supported by the public, but CSU did accept their underlying premise: that CSU could best reach its remediation targets for 2007 with a solution that spanned the state's K–12 and postsecondary education systems.

As CSU acknowledges, meeting the 10% remediation goal by 2007 will require three key steps:

- High school teachers and students must understand CSU placement standards.
- K–12 schools and students must know as early as possible about their progress in meeting CSU standards.
- K–2 students who are not ready for college-level math and English classes must be helped before they reach CSU.

Actions to Solve the Problem

In the late 1990s, CSU began to discuss the remediation problem with a K–16 voluntary body called the Intersegmental Coordinating Committee (ICC) of the California Education Roundtable. The Roundtable brings together representatives from all levels of education in the state. It consists of the heads of the three California public higher education systems (the University of California, California State University, and California Community Colleges), plus a representative from the private colleges and the state’s K–12 chief state school officer, who is elected. The ICC is comprised of high-level administrators under each of the Roundtable leaders.

After consulting with ICC, CSU decided to try several new strategies to lessen remediation. Reflecting the key steps needed to reach the 2007 goal, these initially focused on: increasing communication with K–12 schools on placement standards and assessments; encouraging high school juniors to take the CSU placement test; and providing high school preparation for students with low scores.

This approach proved insufficient, however. The state already required so many K–12 assessments that schools and students resisted taking CSU’s placement test. California has a High School Exit Exam, based mostly on seventh- to ninth-grade standards, as well as the California Standards Tests, which reflect the state’s eleventh-grade standards. Moreover, the cost and staff needed for CSU to assist the huge California K–12 education system was daunting. Furthermore, several studies demonstrated significant discrepancies between required K–12 state tests and CSU’s placement exams (Le 2002; Venezia, Kirst, and Antonio 2003).

Rather than administer another exam to high school students, in the late 1990s CSU decided to negotiate directly with K–12 policymakers to merge CSU placement standards into the existing California Standards Tests, which are given to all students in eleventh grade. A new policy and test design group was formed, representing CSU and the California State Education Department (an advisory group to the California State Board of Education and the CSU Trustees). This group examined test items from several K–12 tests for their relationship to CSU standards, as well as for similarities between K–12 and CSU standards.

The State Board of Education negotiated with CSU to enhance the existing K–12 standards-based tests to meet CSU placement standards. For example, as CSU requested, a writing sample was added to the existing K–12 multiple-choice language arts test, as was an increased focus on Algebra 2 in the math test.

To develop this more comprehensive program of assessing eleventh graders’ readiness for college, CSU gained support from the legislature, the California State Board of Education, the

CSU Department of Education, the University of California, California Community Colleges, CSU faculty, and organizations of K–12 teachers and administrators. The development of an augmented eleventh-grade state assessment proceeded with these multiple stakeholders in mind.

In 2003 CSU set the achievement scores that high school juniors would need to reach to be exempt from its placement exams, and the state then sent test results to incoming seniors by August 1. Low-scoring students can now use the senior year for intensive preparation to meet CSU placement standards.

Common K–16 Standards

The merged CSU and K–12 assessments strategy has many advantages, making this new K–16 collaboration deserving of close scrutiny by other states with high remediation rates. First, it gives a timely, targeted signal to students and schools of the need for added K–12 preparation. Moreover, by coordinating K–16 standards, it reduces the total testing time for students in high school and at CSU. It also raises the stakes for statewide high school tests. Previously students saw no purpose for the eleventh-grade test because the SAT was used for admission and CSU had a separate placement test. This new strategy increases the academic focus during the senior year of high school for students who are not meeting CSU’s placement standards.

“The merged CSU and K–12 assessments strategy gives a timely, targeted signal to students and schools of the need for added K–12 preparation.”

Just as important, the strategy reforms and consolidates multiple K–16 school assessments, while providing better data for K–16 accountability concerning K–12 student preparation for CSU. Instead of the previous lack of alignment between the standards for exiting high school and those for entering CSU, there are now common standards and performance levels across secondary and postsecondary education.

The CSU placement initiative is likely to be more successful than prior policies for a number of reasons. First, both secondary and postsecondary education will be working together. Previously, secondary educators had been unaware of CSU’s placement standards, and high school students had not received clear signals about what they needed to know in order to avoid taking remediation courses in college. Moreover, CSU has discovered that a top-down strategy from the university is insufficient, and that collaboration with the K–12 system holds greater promise. And finally, given the present state of tight and even shrinking state budgets, combined assessments are likely to save the state money and testing time.

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¹ The University of California accepts the top 12% of state high school graduates, but the two systems require the same number and type of high school courses.

Summary of Findings

As these three PACE research papers demonstrate, California secondary school students have higher educational aspirations than ever before, yet these aspirations are being undermined by disconnected educational systems and other barriers.

Over the past few decades, parents, educators, policymakers, business leaders, community members, and researchers have told California students that, in order to succeed in our society, they need to go to college. Most high school students have heard that message, and they are planning on attending college. But California has created unnecessary and detrimental barriers between high school and college, barriers that are undermining these student aspirations.¹

“The current educational systems send conflicting messages about what is expected of students in college.”

- **Articulation is poor between the K–12 and higher education systems.**

The current fractured educational systems send students, their parents, and K–12 educators conflicting and vague messages about what is expected of students to enter and succeed in college. This is part of the reason why the percentage of California’s students (35%) proceeding from high school to college is below the national average (39%) (North Dakota is the highest state at 59%)².

PACE researchers found that California high school assessments often stress different knowledge and skills than do college entrance and community college placement requirements.³ Similarly, the coursework between high school and college is not connected. Students graduate from high school under one set of standards, and three months later are required to meet a whole new set of standards in college. In addition, current data systems are not equipped to address students’ needs across K–12 and postsecondary systems. This means that no one is held accountable for issues related to student transitions from high school to college, including the need for remediation and postsecondary dropout rates.

- **Inequalities among high schools impact students’ college preparation.**

Since a majority of students plan to attend college, it makes sense to help all students learn about their postsecondary options and prepare for college. There are, however, some deep inequalities among high schools and between different high school populations in areas such as college counseling, college-preparatory courses, and connections with local postsecondary

¹ See Joint Committee to Develop a Master Plan for Education, *Governance Working Group Report* (Sacramento, CA, 2001).

² National Center for Higher Education and Public Policy, *Measuring Up: 2002* (San Jose: NCHEPP, 2002).

³ These conclusions are derived from three PACE papers and other data collected for the Bridge project at Stanford University. See Michael Kirst and Andrea Venezia, *From High School to College* (San Francisco, CA: Jossey Bass, 2004).

institutions. High schools also vary greatly in the opportunities they provide students to learn about college, such as arranging for students to visit nearby institutions and for college recruiters to visit their high school.

High school students who are in accelerated curricular tracks and aspire to UC receive clearer signals about college preparation than do their peers who plan to attend community colleges. Many students in middle- and lower-level high school courses are overlooked by postsecondary education outreach efforts, or by college counseling staff in their high schools. This situation is exacerbated by the number of counseling positions in the state's schools (California ranks 50th in the number of counselors per students in grades K–12 (one for every 1,011). economically disadvantaged parents often lack experience and information concerning college preparation. In short, these inequalities are most pronounced for students entering the less selective postsecondary institutions.

- **Student knowledge of curricular requirements and college costs is sporadic and vague.**

Only 2.5% of 9th graders in California knew all the A–G course requirements. About one-third of the 9th graders knew the A–G math requirements for UC and CSU. The community colleges do not transmit explicit signals about any course requirements. In our sample, on average the estimated tuition costs per student were \$30,000 for UC Davis, \$27,000 for Sacramento State, and \$10,000 for a community college. However, the actual tuition costs per student were only \$4,000 at UC, \$2,000 at CSU, and \$300 at community colleges.

- **Because counselors are so scarce, California teachers play a major role in helping students prepare for college, yet they do not have the resources they need to give students accurate information.**

Teachers often took a greater role in helping students prepare for college than did counselors, but teachers lack connections with postsecondary institutions and up-to-date admission and placement information. Also, the teachers who were most active in helping students prepare for college were usually teachers of honors and college preparatory courses. Prospective community college students received the least counseling due to community colleges' open enrollment policy that requires admitting all high school graduates regardless of academic preparation.

- **The distribution of college preparation information to parents is inequitable.**

Parents with no college education know less about academic preparation and college standards than college-educated parents. Consequently, students are less aware of postsecondary options, tuition costs, and required preparatory courses.

- **Students are generally unaware of the content of UC, CSU, and community college postsecondary course placement exams.**

Knowledge about specific placement tests and academic standards was general in nature and incomplete. But failure of placement tests almost always results in students starting in remedial and non-credit courses, delays in program completion, and higher costs for both the student and the college.

Policy Recommendations

The following policy recommendations are not intended to be comprehensive, but rather are derived from the three PACE working papers contained in this report.

Strategies for Immediate Implementation

Given the above problems, what should we strive to change? Our research found that the following four strategies are most promising for immediate reform:

- **Provide all students, their parents, and educators with accurate, high-quality, information about, and access to, courses that will help prepare students for college-level standards.**

Students need clear and repeated signals about how to succeed in postsecondary education. For example, mathematics courses that exceed Algebra 2 and are taken in the senior year, are strong predictors of bachelor degree completion.

- **Focus on the institutions that serve the majority of students.**

Shift media, policy, and research attention to CSU and community colleges, since these are the schools attended by the vast majority of recent high school graduates (approximately 85%). While completion rates are very high for UC students, they are very low, in comparison, for community college students, who are the least well-prepared of all students entering college. Since two-thirds of CSU graduates come through the community colleges, it makes sense to spend a majority of outreach and secondary school counseling resources on these two groups. Increasing the rates of student success at these colleges is a sound public investment both in terms of California's civic and economic well-being.

“Expand the focus programs from access to college to success in college.”

- **Create an awareness that getting into college is not the hardest part for most students—learning to handle college-level work while still in high school is.**

Expand the focus of local and state programs from access to college to include access to success in college. This includes access to the resources and information necessary to prepare well for college and to make informed decisions. High school course content, academic counseling, college outreach, and other programming needs to reflect this so that students are clear about what it takes to succeed in college, including community college.

- **Bring together representatives from K–12 and higher education to implement change.**

Reforms across the two education systems will be difficult if not impossible to implement without meaningful communication and policy-making institutions that span K–16. For a start, California college stakeholders must be brought to the table when K–12 standards and assessments are developed or revised. Higher education institutions were not represented when California completed its K–12 academic content standards in 1997. Likewise, California K–12 educators must be engaged as postsecondary education admission and placement policies are under review. For example, outreach funds need to be included as part of a larger K–16 policy focus, and not merely connected to budgets of higher education institutions. Since outreach for college preparation is not viewed as a K–12 budget concern and therefore is not part of its funding stream, it can be cut more easily.

Future Implementation Strategies

The following are several other important, long-range steps that California’s K–12 and postsecondary systems can take to improve the transition from high school to college.

- **Ensure that community colleges publicize their academic standards so that students, their parents, and educators have accurate college preparation information.**

Low-income families and prospective community college students are most in need of this information. Specifically, we suggest that local community colleges establish a test score range on the California Standards Test (given to all students in grades 10–11) that is likely to place students in or out of remediation. This credit-level standard for community college English and math courses needs to be disseminated to prospective students and their families at the same time they receive test results from the California standards test. Since local community colleges use several different placement tests, this CST range would send a clearer signal to prospective community college students concerning their college readiness. California community colleges should study the 11th grade CST to see if it should be added to the approved list of community college placement tests. At the same time, UC should continue its exploratory research for possible use of the CST as part of comprehensive admissions.

“Sequence undergraduate requirements so that appropriate senior-year courses are linked to postsecondary general education courses.”

- **Sequence undergraduate general education requirements so that appropriate senior-year courses are linked to postsecondary general education courses.**

The “senior slump” is a widespread issue in California high schools.¹ Some California students regress academically during their senior year—particularly if they take few college preparatory courses. The senior year needs to be an intense academic experience for all students planning to attend postsecondary education, and can be, providing students know they are underprepared for college success.

- **Expand successful dual (concurrent) enrollment programs between high schools and colleges so that they include all students, and not just those who plan to attend highly selective colleges.**

Historically most high school students participating in dual enrollment programs have been enrolled in honors and advanced placement courses. However, students who plan on attending CSU or community college can also benefit from such programs. Dual enrollment at the community college level is being revamped to de-emphasize physical education courses, but much more needs to be done. California still lacks a clear policy on the college readiness purposes or effective design of dual enrollment. Dual enrollment can provide realistic information to students about the skills they will need to succeed in college, and improve motivations through interesting courses. It can also promote institutional relationships between colleges and high schools.

- **Collect and connect data from all education sectors.**

California K–16 institutions should create common identifier numbers for students as they proceed from high school through college. These student numbers would be used by all parts of the K–16 system. This would make it possible to analyze the relationship between secondary school student course-taking patterns, the need for college remedial work, and longitudinal trends on what happens to students after they complete college remedial coursework. Current law prohibits school districts from reporting California Standards Test (CST) scores on high school transcripts. This law should be repealed so that postsecondary education can receive CST scores. This would encourage students to take the CST seriously, reduce redundant placement testing, and help reduce remediation.

- **Implement a California Education Commission to oversee K–16 articulation.**

All of these recommendations will be easier to accomplish and implemented more effectively if there is an overall organizational base for K–16 policymaking and oversight. California’s proposed Master Plan for K–16 recommended just such a structure. Called the California Education Commission (CEC), as conceived the organization should provide a good start on K–16 policymaking.² The CEC would:

- Provide long-range analysis and planning for meeting the educational needs of preschool through postsecondary education.

¹ See Michael W. Kirst, *Overcoming the Senior Slump* (San Jose, CA: National Center for Public Policy and Higher Education, 2001).

² Joint Committee to Develop a Master Plan for Education, *The California Master Plan for Education* (Sacramento, CA, 2001).

- Provide policy and fiscal advice, based on data analysis, that represents the public interest in California's education system.
- Serve as California's statewide education data repository.
- Evaluate the extent to which all public education institutions are operating consistent with state policy priorities.
- Advise the Legislature and the Governor on the potential and actual impacts of major education policy proposals or initiatives.
- Coordinate statewide articulation of curriculum and assessment between the pre-K–12 and postsecondary education sectors.
- Sponsor and direct intersegmental programs that benefit students making the transition from secondary school to college and university.
- Coordinate outreach activities among the secondary, postsecondary, and school-to-work sectors.

PACE concurs with the Master Plan's governance working group recommendation that the Governor assume a major role in K–16 coordination and devise a plan to greatly enhance K–16 data.³ Only the Governor can bring together the four different systems that comprise K–16 (UC, CSU, CC, and K–12) in California. But concerted efforts by policymakers, educators, parents, and students is also needed to improve student access to success in postsecondary education. While implementing these recommendations will not magically eliminate the dozens of other reasons why California students are not prepared adequately for college, it will go a long way toward improving transitions from high school to postsecondary education.

³ Ibid, pages 17–20.

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