

The Preuss School at UCSD:
School Characteristics and Students' Achievement

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Executive Summary

The Preuss School, a charter school located on the campus of University of California, San Diego, was founded to expand educational opportunity for students from low-income households.

The School offers all students a rigorous academic curriculum supported by a differentiated system of academic and social supports, including a longer school day, a longer school year, intensive tutoring, mentoring, counseling, and parent education opportunities.

The School admits only students who qualify for federal meal assistance, and whose parents have not graduated from a four-year college. In addition, the School seeks students who show academic promise but who may not have lived up to their full potential. Each year, applicants who fit this profile are placed into a random drawing. In this lottery, students are randomly selected for admission into the Preuss School, with other students placed on a waitlist. Waitlist students serve as a control group that enables comparisons between students who applied and were accepted with students who applied but were not accepted to the School

Parts 1 and 2 of this report present information about Preuss School enrollment trends and student demographics, test scores and course-taking patterns from 1999-2004, and college enrollment and matriculation information about the class of 2004. Part 3 presents information about Preuss School students compared to students who applied to the application lottery but were not accepted into the school

Some notable college enrollment information:

- 100% of all of the 2004 graduating class will continue their education at either a 2-year or a 4-year institution. 80% will attend 4-year colleges or universities and 20% will enroll in local community colleges.
- 43.4% will enroll in UC, 16.4% in CSU, 20% in private colleges (including Stanford, NYU, Spellman, Dartmouth); 20% will enroll in community colleges with an option to transfer to UC after 2 years.

Some notable enrollment trends and demographic information about the Preuss School:

- The Preuss School opened with 150 students in grades 6-8 in 1999-2000 and reached its enrollment capacity of 750 in the 2003-2004 school year.
- 57.3% of the student population is Latino, 14.2% is African American, 19.7% is Asian, 6.3% is White, 2.0% is Filipino, 0.5% is Pacific Islander (2002-2003 school year).
- 9% of the School population are English language learners; of that group, 74.8% speak Spanish as a first language
- The 36 full-time teachers in 2002-2003 average 6.7 years of teaching experience; 86% are fully credentialed.
- In 2002-2003, The School had the highest API scores in San Diego County for schools with greater than 80% of students eligible for meal assistance and ranked in the top 10 of all schools, regardless of meal assistance eligibility

Some notable test score information and course-taking patterns:

- The vast majority of Preuss School students scored above the 50th percentile in reading on the CAT/6 reading test in 2002-03; ranging from 66% in grade 8 to 93% in grade 10; greater than 80% of grade 9-12 Latino and Asian students scored at or above the 50th percentile in reading.
- The percent of students scoring at or above the 50th percentile on the CAT/6 Mathematics test ranged from 70% for 8th graders to 83% for 10th graders in 2002-03.
- 90% of the Preuss School graduating class of 2004 passed both portions of the California High School Exit Exam by March 2003
- 92% of the Preuss School graduating class of 2005 passed both portions of the California High School Exit Exam by March 2003
- Students in the ninth through eleventh grades wrote 327 AP exams during the 2002-03 school year; 37% received a score of 3 or higher (which earns college credit).
- Every member of the Preuss School graduating class completed the UC/CSU A-G requirement; the rate for the graduating classes in San Diego County from 2000-2003 ranged from 35% to 39%.
- 98% of the class of 2004 took the SAT-I in 2002-03; the California average was 37% and the SDCS average was 49%.
- The Preuss School average combined score was 984; the California average was 1012, the San Diego County and SDCS average was 1003.
- 2004 graduates admitted to the University of California scored an average 529 on the writing and 538 on the Mathematics portions of the SAT II, both were lower than the average scores recorded for all UC admits, which were 583 and 596 in writing and Mathematics, respectively.

Some notable information about the performance of Preuss School and comparison group students on standardized tests, GPA, and A-G course taking patterns:

- On the California Standards Test in 2002-2003, students in the 10th grade at the Preuss School and in the comparison group recorded nearly identical scores.
- Students in the 11th grade at the Preuss School and in the comparison group scored essentially the same in all areas of the California Standards Test in 2002-2003, except in the History portion of the exam, where the Preuss Students scored significantly higher.
- Students in the 10th and 11th grades at the Preuss School and in the comparison group scored essentially the same on the CAT/6 in 2002-03
- Students in the 11th grade at the Preuss School and in the comparison group had essentially the same unweighted and weighted GPA for the 2003-4 academic year
- By the end of the 10th grade, Preuss students had completed significantly more A-G course years (9.97) than the comparison group (7.78). Courses in History/Social Science, Language (e.g., Spanish) and College Electives accounted for this difference

Part 1: School Characteristics

Student Enrollment

WHAT IS BEING MEASURED:

Reported here are the total numbers of students enrolled, by year (Figure 4.1), as well as the number of students per grade at the Preuss Model School at UCSD (Figure 4.2). Enrollment figures are reported to the California Department of Education during the month of October each academic year.

NOTABLE FACTS:

- Preuss School reached its enrollment capacity of 750 in the 2003-2004 school year.
- From 1999-00 to 2003-04 the Preuss School added both students and grade levels to reach enrollment capacity.

All students in San Diego County area are welcome to apply for admission to the Preuss School. Successful applicants demonstrate a high level of motivation and family support, meet federal guidelines for economic support known as "Title One" or "Free or Reduced Lunch" and come from households where parents or guardians did not graduate from a four-year college or university.

When the number of applicants meeting the admission criteria exceeds available space, a lottery is held to ensure that applicants have an equal chance for admission to the school.

The Preuss Model School has grown dramatically since opening its doors to 150 students in grades 6-8 in 1999-00 (Figure 4.1). The maximum planned enrollment was approximately 750 students across grades 6 through 12, and the school reached this enrollment limit in 2003-2004 by steadily adding both grade levels and students in each academic year (Figure 4.2).

Figure 4.1

Preuss Total Enrollment by Academic Year
1999-00 through 2002-03

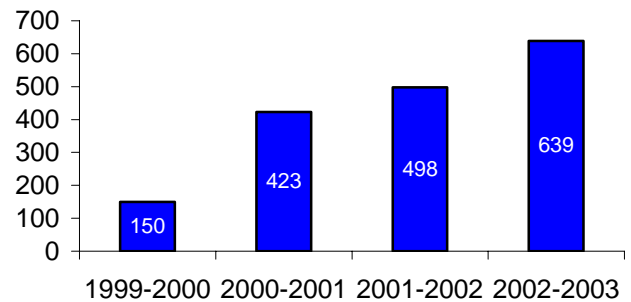
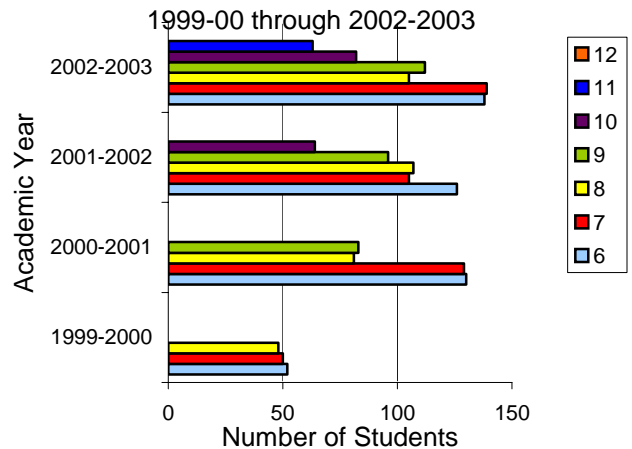


Figure 4.2

Total Enrollment by Academic Year &
Grade



SOURCES:

Information regarding student enrollment is available at the California Department of Education Web site at <http://data1.cde.ca.gov/dataquest>.

Student Enrollment by Race & Ethnicity

WHAT IS BEING MEASURED:

The State of California characterizes K-12 students by race and ethnicity using eight classifications: American Indian/Alaskan Native, Asian, Pacific Islander, Filipino, Hispanic or Latino, African American, White or Anglo, and multiple or no response. Parents identify a child's race/ethnicity as part of the enrollment process and this information is reported to the State on an annual basis. Presented here are the enrollments by race and ethnicity for County of San Diego and the Preuss School in the 2002-2003 school year.

NOTABLE FACTS:

- Preuss has a racially and ethnically diverse learning community.
- Latino & Asian students represented 77% of the students enrolled during the 2002-2003 academic year.

The Preuss School has a racially and ethnically diverse student body. While admission to the school is race-blind, the income and parental education requirements for admission have attracted a diverse student body that is quite different from that found in greater San Diego County (Figures 5.1 & 5.2).

Approximately 94% of the students attending Preuss are nonwhite and when combined, Latino and Asian students represent over 75% of the students enrolled at the school. Over the past four years Latino students have been the largest group at Preuss, representing 52% of total students in 1999, 53% in 2000, 56% in 2001, and 57% during the 2002-03 school year. Asian students attending Preuss have increased dramatically, nearly doubling, from 11% in 1999-00 to 20% in 2002-2003.

The number of African-American students has declined over the past several years from 24% in 1999-00 to 14% 2002-03. The 2002-03 African-American enrollment at Preuss is substantially higher than it is in San Diego County and California, both at 8 percent.

For purposes of comparison, California enrollments by group in 2002-03 were: 1% American Indian, 8% Asian, 1% Pacific Islander, 3% Filipino, 45% Latino, 8% African American, 34% Anglo, and 1% provided multiple or no response.

Figure 5.1

Preuss School Enrollment by Race/Ethnicity 2002-2003

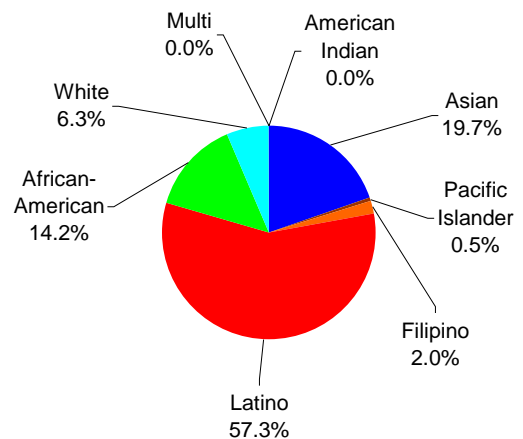
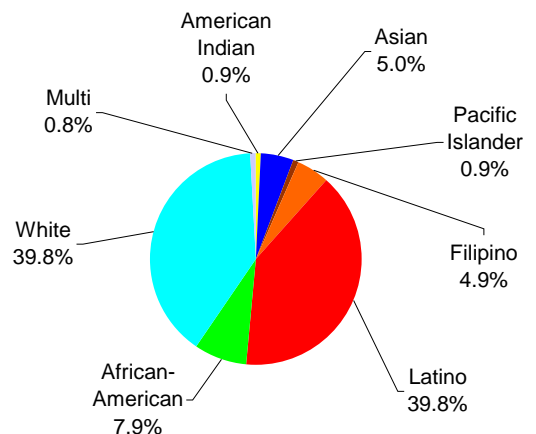


Figure 5.2

San Diego County School Enrollment by Race/Ethnicity 2002-2003



SOURCES: Information regarding enrollment by ethnicity and school, county, and state is available at the California Department of Education Web site at <http://data1.cde.ca.gov/dataquest>.

English Learners

WHAT IS BEING MEASURED:

This section provides information on the number of English Learners (EL) enrolled at the Preuss School. Students complete a "Home Language Survey" when they enroll and students indicating a language other than English as their home language are given the California English Language Development Test (CELDT) to determine their English language proficiency. Included in the CELDT are assessments of spoken language, listening comprehension and reading and writing skills. Students who perform poorly on the CELDT are designated EL students and those performing well are classified as Fluent English Proficient (FEP). EL students at Preuss are retested annually and once CELDT scores indicate proficiency, students are redesignated, moving to FEP status. The rate of redesignation is calculated annually and is determined by dividing the number of redesignated students by the prior year's EL count, then multiplying by 100.

NOTABLE FACTS:

- Nine percent of Preuss students are designated English Learners, a much lower proportion than found in San Diego County (23.5%).
- The lower proportion of EL students at Preuss is due, at least in part, to the much higher rate of redesignation to English fluency.

The English Learning (EL) community at the Preuss School is diverse (Figure 6.1), with students coming from homes where Spanish, Vietnamese, Cantonese, Hmong, and Khmer (Cambodian) are spoken. When the Preuss School opened in 1999, Spanish accounted for all of the students in the EL program. While Spanish has remained the dominant language in the EL community, the number of students with Spanish as a home language has declined over time: 88% in 2000-01, 84% in 2001-02, and 75% in 2002-03.

English Learners accounted for 9% of Preuss students in 2002-03 and the percentage of students in the EL program has varied slightly over time: 10% in 1999-00, 12% in 2000-01, and 12% in 2001-02. By comparison, 23.5% of students enrolled in San Diego County are designated English Learners (Figure 6.2). This difference is best understood by looking at the redesignation rate from EL to FEP in the two groups. Students at Preuss have taken and passed the CELDT at an unusually high rate relative to the County (Figure 6.3). Once the CELDT is passed, students are redesignated FEP and are removed from the English Learner category.

SOURCES:

Data on English Learners and redesignation is available at the California Department of education Web site at <http://data1.cde.ca.gov/dataquest/>.

Figure 6.1

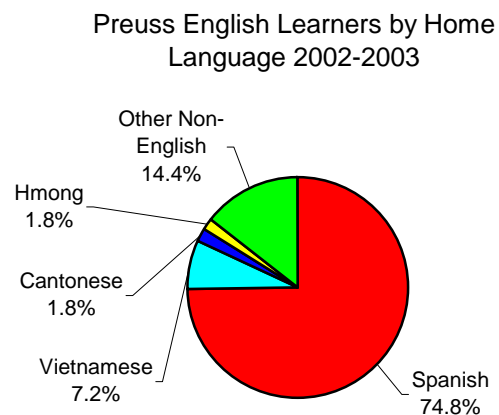


Figure 6.2

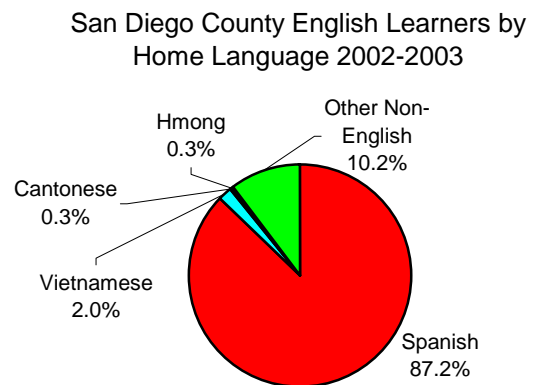
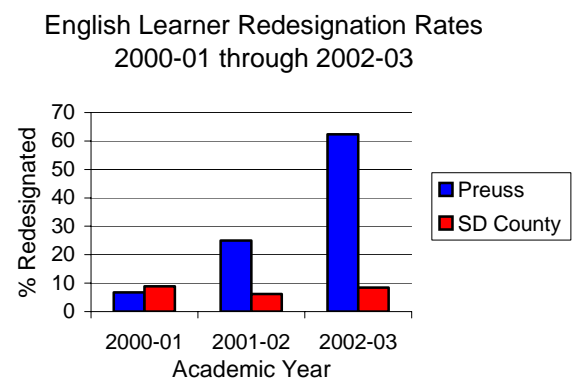


Figure 6.3



Teachers

WHAT IS BEING MEASURED:

The information in Figure 7.1 and Table 7.2 describe the professional characteristics of the teachers at the Preuss School and in San Diego County. Included is information about classroom experience, degrees earned, credentials obtained, and gender for the 2002-03 academic year.

NOTABLE FACTS:

- Teachers at the Preuss School have fewer years of classroom experience when compared to the San Diego County averages.
- 25% of the teachers at the Preuss School are “beginning teachers” with one or two years of classroom experience.

The 36 teachers* on staff at the Preuss School in 2002-03 were ethnically diverse (Figure 7.1) and averaged 6.7 years of experience compared to the San Diego County average of 13.5 years (Table 7.2); 33% had earned a masters or PhD degree, compared to the county average of 45%. According to the CDE, 86.1% of Preuss School teachers and 97% of San Diego County teachers were fully credentialed. The Preuss School has a higher proportion of new teachers (those in their first or second year of teaching): 25% at Preuss and 11% in San Diego County. More teachers at Preuss are male than in the County: 38.9% compared to 27.2 %.

The number of teachers at the Preuss School has increased as the school has grown: it began with 10 in 1999; more than doubled to 25 in 2000-01, increased to 27 in 2001-02, and reached 36 in 2002-03.

**For the sake of comparability, information available from the California Department of Education was used in the preparation of the table and graph presented here. However, internal records of the school indicate that the state’s data substantially understates the qualifications of Preuss School teachers. According to Preuss records, the school employed 37 full-time teachers during the 2002-03 academic year, of whom 97% (36/37) were fully credentialed. Average teaching experience was 6.97 years and 43% of the teachers had a master’s degree or above. Of the 37 teachers, five (14%) were first or second year teachers.*

Figure 7.1

Preuss Teachers By Race/Ethnicity 2002-2003

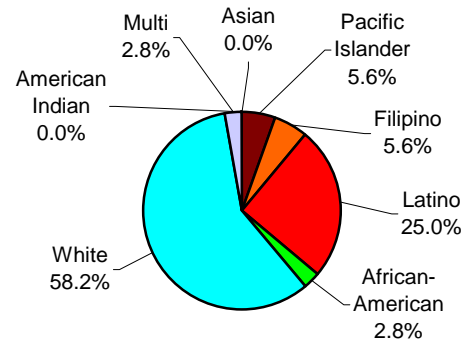


Table 7.2

TEACHER DEMOGRAPHICS 2002-2003	PREUSS SCHOOL	SAN DIEGO COUNTY ¹
Number of full time teachers	36	25,544
Average years of teaching experience	6.7	13.5
Percent holding advanced degrees	33	45
Percent fully credentialed	86	97
Percent 1 st or 2 nd year teachers	25	11
Percent female	61	73
Percent male	39	27

SOURCES: Data on teacher figures are available at the California Department of Education Web site at <http://data1.cde.ca.gov/dataquest/>. Additional information was furnished by the Preuss School.

¹ Figures for San Diego County include all teachers in K-12.

Academic Performance Index (API)

WHAT IS BEING MEASURED:

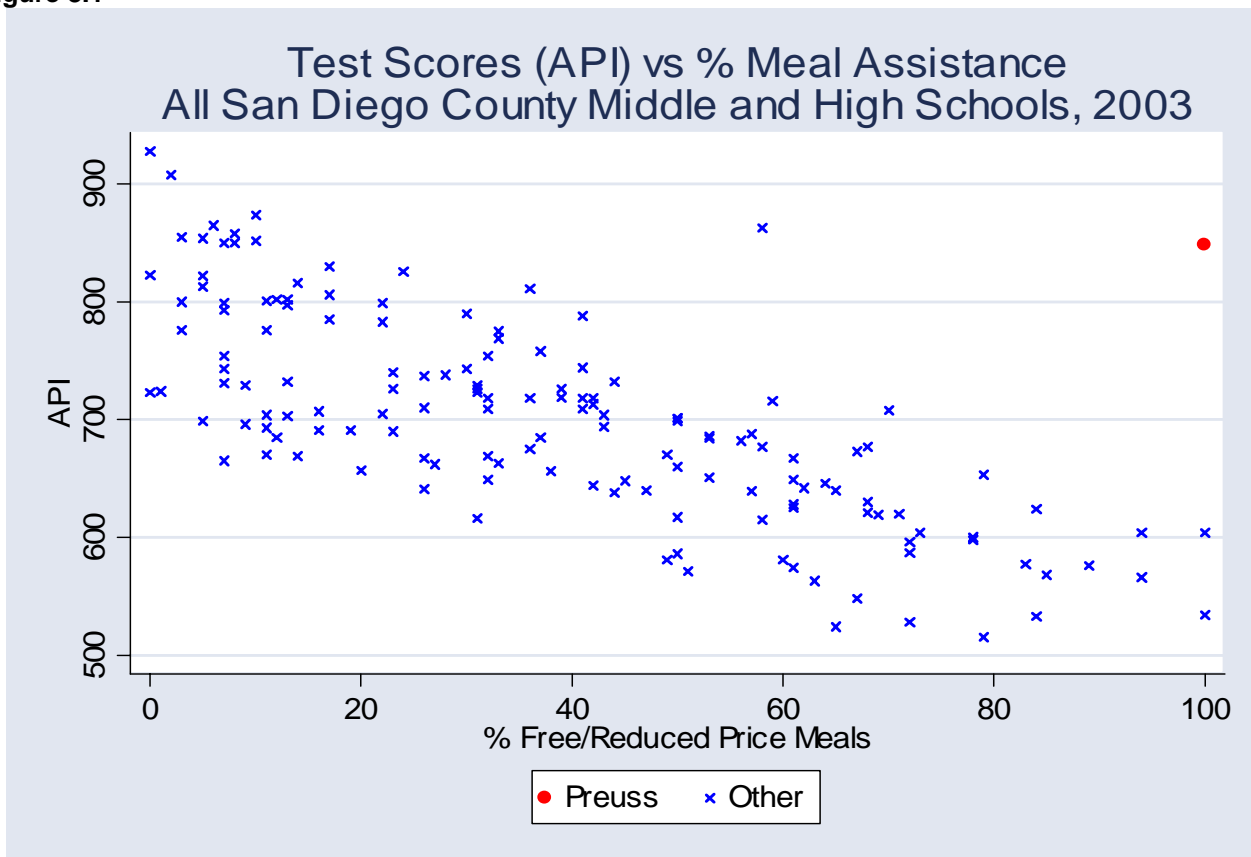
The Academic Performance Index (API) is the overall measure of student achievement for a school calculated by the state Department of Education. It incorporates data on many different measures such as the CAT6 test and the California High School Exit Examination. In theory, a school's API can range between 200 and 1000. The state's target is for every school in the state to reach a score of 800 or higher. Below, we graph Base 2003 API scores for every middle and high school in the county against the percentage of students at the school who are eligible for free/reduced-price meals. This latter measure indicates the level of economic status of students' families.

NOTABLE FACTS:

- In 2002-2003, Preuss had the highest API score in San Diego County for schools with greater than 80% eligibility for meal assistance.

Figure 8.1 shows that schools serving less affluent students tend to have much lower API's than do schools serving students who come from households that are more affluent. The Preuss School clearly bucks this trend: it has one of the highest API's in the county and at the same time is one of only a few schools to have more than 95% of students eligible for meal assistance. Countywide, only 7 high schools and 16 middle schools have reached the state target of 800 or higher on the API. Of these 23 schools, only 3 serve student populations with more than 25% eligible for meal assistance, and only 2, including the Preuss School, serve populations with 50% or more eligible for meal assistance.

Figure 8.1



SOURCES: California Department of Education at <http://api.cde.ca.gov/datafiles.html> and <http://www.cde.ca.gov/demographics/files/afdc.htm> were the sources for figure 9.1

Part 2: Preuss School Students' Achievement

Standardized Test Results: Reading

WHAT IS BEING MEASURED:

Pages 6 through 9 examine student achievement on two standardized tests. The first is the Stanford Achievement Test, ninth edition (SAT-9), which tests reading, language, math, and spelling skills in grades 2-8, and reading, language, math, history/social science, and science in grades 9-11. The Stanford 9 was used from 1998 through 2002 and was replaced in 2003 with the California Achievement Test, sixth edition (CAT/6). The CAT/6 is a norm-referenced test, administered to students in grades 2-11 as part of the state's Standardized Testing and Reporting Data (STAR) system. The CAT/6 tests students in English language arts, spelling, math and high school science. For both tests, we report the percentage of students scoring at or above the 50th percentile, based on national norms².

NOTABLE FACTS

- A high proportion of Preuss students scored at or above the 50th percentile on the SAT-9 reading test relative to S.D. County.
- Greater than 90% of Preuss 10th & 11th graders scored at or above the 50th percentile on the CAT/6 test of reading.

Table 9.1 shows that when compared to San Diego County, the Preuss School had a higher proportion of students scoring at or above the 50th percentile on the SAT-9 in each grade level and for each year since 1999. Performance on the CAT/6 and the Stanford-9 cannot be directly compared because the tests have different structures, difficulty levels, and content emphasis. For this reason performance on the CAT/6 is presented separately in Table 9.2. CAT/6 reading performance was similar to that seen on the SAT-9; a very high proportion of Preuss students scored at or above the 50th percentile. Especially impressive is the performance of the 10th grade (with 93%) and the 11th grade (with 93%) performing at or above the 50th percentile.

Table 9.1

Stanford-9 Reading Test
Percent of Students at or above the 50th percentile

GRADE LEVEL	1999-00		2000-01		2001-02	
	Preuss	SD County	Preuss	SD County	Preuss	SD County
6	69%	53%	71%	53%	90%	54%
7	85%	52%	76%	54%	74%	53%
8	82%	56%	92%	56%	79%	56%
9	*	42%	60%	41%	67%	40%
10	*	40%	*	39%	63%	38%
11	*	43%	*	41%	*	42%

* Students were not enrolled at Preuss in these grade levels

Table 9.2

CAT/6 Reading Test
Percent of Students at or above the 50th percentile

GRADE LEVEL	2002-03	
	Preuss	SD County
6	79%	50%
7	83%	50%
8	66%	45%
9	86%	54%
10	93%	52%
11	92%	50%

SOURCES: Data on Stanford-9 performance is available at the California Department of Education Web site at <http://data1.cde.ca.gov/dataquest/>. Information regarding the CAT/6 can be found at the California Department of Education Web site at <http://star.cde.ca.gov>.

² These tests were administered nationally and national performance was used to establish the score for the 50th percentile. We use the percentage of students at or above the 50th percentile as a performance measure because, based on national performance, a "truly average" school would have equal numbers of students above and below the 50th percentile. Above average schools are likely to have a higher proportion of students performing at or above the 50th percentile and, as such, this proportion is used as a measure of the extent to which a school is "above average". It is worth noting that the demographics of students in the national norming group looked quite different than the student body at the Preuss School. Nationally 2% of test takers were English learners (9% at Preuss) and 29% came from low income households (100% at Preuss) - membership in either demographic group has historically predicted low relative performance on standardized tests.

Standardized Test Results: Reading, by Ethnicity

WHAT IS BEING MEASURED:

The CAT/6 reading exams are taken by all students in grades 2-11. Here we disaggregate performance by Race/Ethnicity and grade level. All students, including those designated as English Learners and those enrolled in special education programs are required to take the CAT/6 reading exam³. Consistent with California Department of Education policy regarding the confidentiality of student records, we do not report data for groups where the number of students is less than ten.

NOTABLE FACTS

- Across racial and ethnic groups, Preuss School students outperformed the county averages in reading, as measured by the proportion of students at or above the 50th percentile.
- Greater than 80% of grade 9-12 Latino and Asian students scored at or above the 50th percentile in reading

The differences are particularly dramatic for Preuss Latino and African-American students, who earned scores that were at or above the 50th percentile at a high rate relative to the County of San Diego (Figures 10.1 and 10.2).

Across grade levels, the proportion of Asian students (Figure 10.3) performing at or above the 50th Percentile was greater at the Preuss School than in the county. In grades 6 through 9, the proportion ranged from 78% to 82% and all Asian students in grades 10 & 11 exceeded the 50th percentile benchmark.

The Preuss School tested 637 of the 639 students enrolled during the administration of the 2002-03 CAT/6. Because of this high test taking rate, the demographic characteristics of the school and of test takers was virtually identical.

Figure 10.1

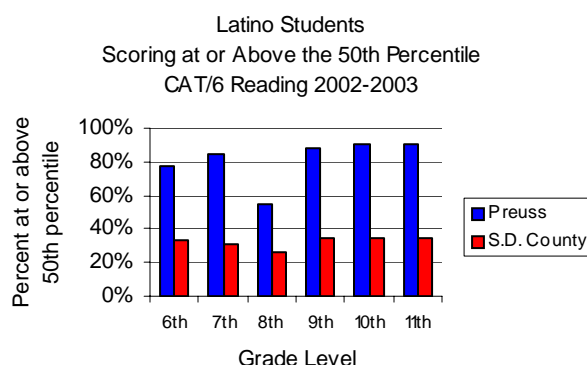


Figure 10.2

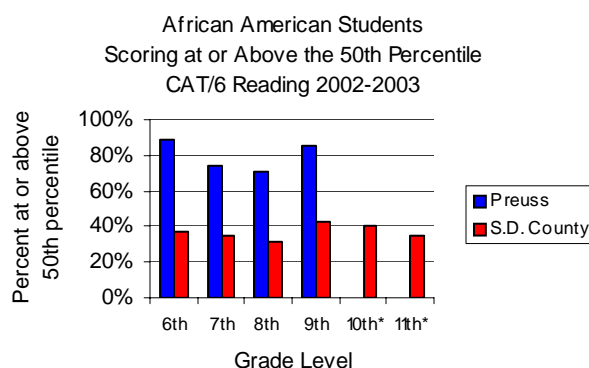
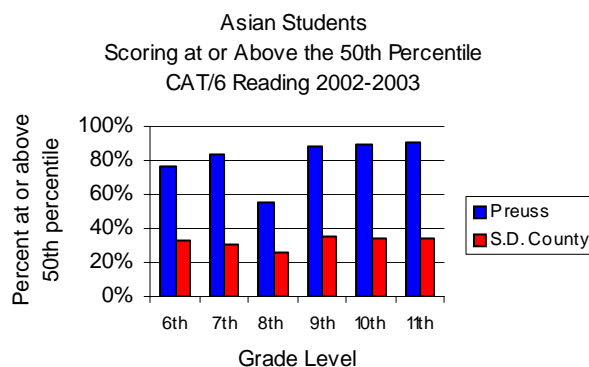


Figure 10.3



SOURCES: Information regarding the CAT/6 results is attainable at the California Department of Education Web site at <http://star.cde.ca.gov>.

³ Parents/guardians can request, in writing, that their child be excused from testing.

Standardized Test Results: Mathematics

WHAT IS BEING MEASURED:

Standardized mathematics exams are taken every school year by students in grades 2-11. From the 1999-00 to the 2001-02 school year, students were tested using the Stanford-9. Beginning with the 2002-03 academic year, the state of California discontinued use of the SAT-9 and introduced the CAT/6 examination. The CAT/6 and the Stanford 9 results cannot be directly compared due to differences in structure, difficulty and content emphasis. Conversion factors, which would allow comparison of the two tests, have not yet been released by the California Department of Education.

NOTABLE FACTS:

- Preuss had a high proportion of students scoring at or above the 50th percentile on the SAT-9 Mathematics test.
- In 2002-2003, Preuss students took the CAT/6 and continued to perform well; 83% of the 10th grade test takers scored at or above the 50th percentile.

As was true with the standardized reading tests, a substantial proportion of Preuss students scored at or above the 50th percentile on the Mathematics tests.

Table 11.1 provides information on the performance of Preuss and San Diego County students on the SAT-9. In all years and grades, Preuss students had a higher proportion of students scoring above the 50th percentile when compared against San Diego County averages.

Similar results are seen in performance on the CAT/6 where, across grade levels, a minimum of 70% of students scored above the 50th percentile (Table 11.2).

Table 11.1

Stanford-9 Mathematics Test
Percent of Students at or above the 50th percentile

GRADE LEVEL	1999-00		2000-01		2001-02	
	Preuss	SD County	Preuss	SD County	Preuss	SD County
6	94%	62%	81%	63%	92%	65%
7	77%	55%	70%	56%	69%	57%
8	59%	55%	72%	54%	56%	54%
9	*	58%	83%	59%	87%	57%
10	*	52%	*	52%	72%	50%
11	*	54%	*	54%	*	51%

* Students were not enrolled at Preuss in these grade levels

Table 11.2

CAT/6 Mathematics Test
Percent of Students at or above the 50th percentile

GRADE LEVEL	2002-03	
	Preuss	SD County
6	80%	56%
7	79%	52%
8	70%	51%
9	75%	50%
10	83%	55%
11	78%	50%

SOURCES: Data on Stanford 9 results is available at the California Department of Education Web site at <http://data1.cde.ca.gov/dataquest/>. Information regarding the CAT/6 results is attainable at the California Department of Education Web site at <http://star.cde.ca.gov>.

Standardized Test Results: Mathematics, by Ethnicity

WHAT IS BEING MEASURED:

In 2003, students enrolled in grades 2-11 were required to take the CAT/6 mathematics test during the spring semester. The results of that test, by ethnicity, are reported here. Consistent with California Department of Education policy regarding the confidentiality of student records, we do not report data for years or groups where the number of students is less than ten*.

NOTABLE FACTS

- A higher proportion of Latino, African American and Asian students scored at or above the 50th percentile in Mathematics compared to San Diego County.
- 100% of 11th grade Asian students were above the 50th percentile in 2003.

Preuss students performed well on the CAT/6 mathematics test, relative to students in San Diego County.

Latino and African American students at Preuss scored above the 50th percentile at a high rate when compared to students in the county. Particularly impressive were the proportions of 7th and 10th grade Latino students, and African American 6th and 9th graders above the 50th percentile. (Figures 12.1 and 12.2)

Asian students (Figure 12.3) at Preuss did well on this exam, especially those in 11th grade, where all students scored above the 50th percentile.

*Figures showing the performance of students in the White, Filipino, and Pacific Islander categories were not included due to the small number of students in these groups. This was also the case for African American students in grades 10 and 11.

Figure 12.1

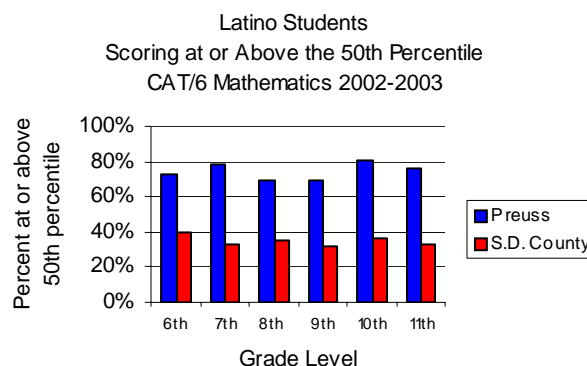


Figure 12.2

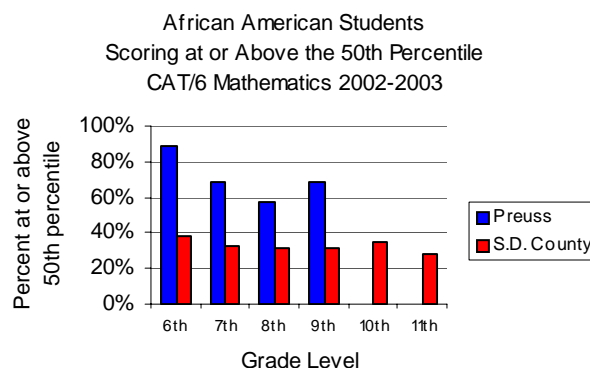
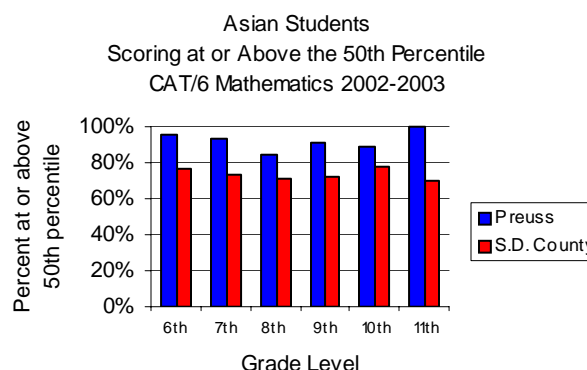


Figure 12.3



SOURCES: Information regarding the CAT/6 results is attainable at the California Department of Education Web site at <http://star.cde.ca.gov>.

High School Exit Exam Results (CAHSEE)

WHAT IS BEING MEASURED:

“State law, enacted in 1999, authorized the development of the California High School Exit Examination (CAHSEE), which students in California public schools would have to pass to earn a high school diploma ...beginning in the 2005-2006 school year, all students are required to pass the CAHSEE to earn a high school diploma.” (*Reporting Individual Student Results for the 2003-04 School Year*, California Department of Education, March 2004)

The CAHSEE contains two subtests, English Language Arts and Mathematics. The CAHSEE tests students to ensure that graduates demonstrate proficiency in the state content standards for reading, writing, and mathematics. Presented are the cumulative pass rates for the Preuss School and San Diego City Schools (SDCS) classes of 2004 and 2005, through March of 2003. Excluded from the comparison are San Diego County and State pass rates. There are two reasons for this exclusion. The first is that the CDE provides information on the individual tests, but does not report the percentage of students passing both sections of the exam in a given year. The second is that the data does not account for student test taking across years. This is problematic because students can (and do) take and pass the separate portions of the CASHEE in different reporting years.

NOTABLE FACTS:

- 90% of the Preuss class of 2004 had passed both portions of the CASHEE by March 2003.
- 92% the 2005 graduating class had passed both portions of the test by March 2003.

Figure 13.1 reflects the cumulative pass rate (through March of 2003) for the class of 2004 in San Diego City Schools and at the Preuss School. At the time these figures were compiled, the Preuss class of 2004 contained 60 students. Of those students, 57 (95%) passed the mathematics portion of the test and 57 (95%) passed the ELA section. The class of 2004 had 54 (90%) of its students passing both sections of the examination, with three (5%) who had not passed, and three (5%) who had not taken the test. Based on data from SDCS (Figure 13.2), the Preuss class of 2005 had 83 students: 77 (93%) passed the mathematics portion, 5 (6%) had not, while 1 student (1%) had not taken this portion of the test. In addition, 81 students (98%) passed the ELA section and 2 students (2%) had not taken the examination. Overall, the class of 2005 had 76 (92%) students passing both sections of the CAHSEE, 5 (6%) who did not pass, and 2 (2%) who had not taken the examination.

Figure 13.1

CAHSEE Results for the Class of 2004
(Cumulative results as of March 2003)

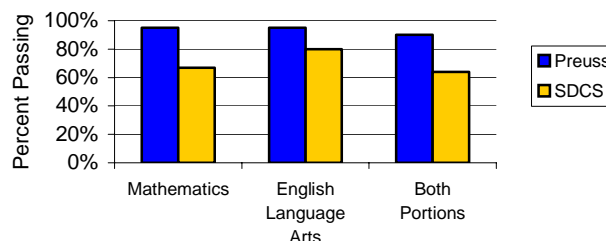
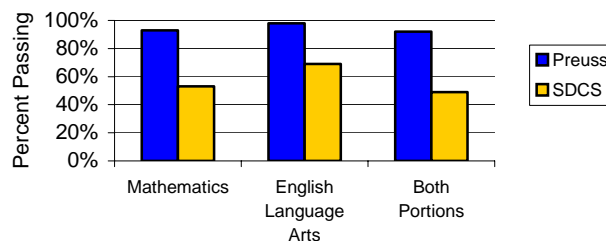


Figure 13.2

CAHSEE Results for the Class of 2005
(Cumulative results as of March 2003)



SOURCES: Data on CAHSEE results are available at the California Department of education Web site at <http://data1.cde.ca.gov/dataquest/>. The cumulative information for SDCS was kindly provided by San Diego City Schools Research and Reporting Department.

Advanced Placement Examinations

WHAT IS BEING MEASURED:

Advanced placement courses are college level courses offered in nineteen subject areas at high schools in the State of California. The Advanced Placement (AP) Examinations are taken each year in May and the results of these tests determine if a student demonstrates sufficient mastery to earn both the additional grade point and college credit associated with an AP course. The examinations are scored on a five-point scale with a score of three required to pass the examination. The exam taking and pass rates of Preuss students are presented here, but comparisons to the state, county, and SDCS are not made due to an incomparability of the data available through the California Department of Education (CDE). Comparisons could not be made because the CDE presents data for 12th grade, and combined 11th & 12th grade enrollments and the Preuss School did not have a 12th grade in the 2002-03 reporting cycle.

NOTABLE FACTS:

- The Preuss School had 11 students named AP Scholars in 2002-2003. These students passed at least 3 AP examinations with a score of 3 or more.

Figure 14.1 shows the number of AP exams, by subject area, taken by Preuss students in 2001-2002 and 2002-2003. Figure 14.2 provides information on the percentage of those exams receiving a passing score of three or better.

During the 2002-03 school year, there were 327 AP exams taken by students in the ninth through eleventh grades in five subject areas. Of the 327 tests, 37% (120) received a score of three or better.

There were 126 examinations taken during the 2001-02 academic year by 9th and 10th grade students. Examinations were taken in two subject areas: Spanish Language and European History (64). Of the 126 exams, 56% (70) received a score of 3 or better.

Eleven Preuss students were named AP Scholars in 2002-03: 6 AP Scholars (3 tests with a score of 3 or better), 3 AP Scholars with Honors (4 tests with a score of 3 or better), and 2 AP Scholars with Distinction (5 tests with a score of 3 or better).

Figure 14.1

Preuss AP Exams Taken, by Subject Area

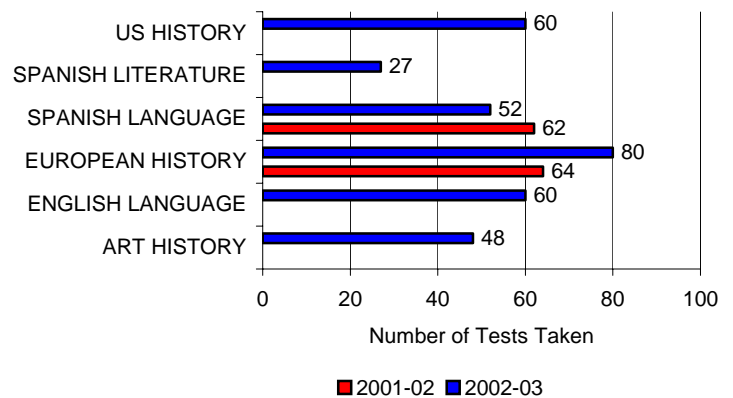
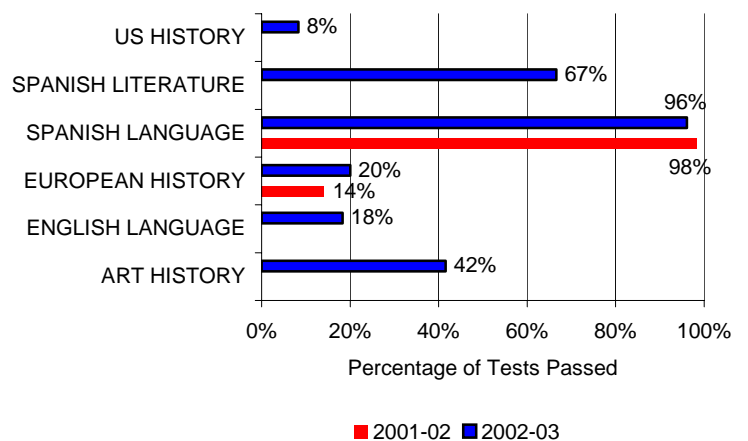


Figure 14.2

Percentage of Students Receiving a 3 or Better



SOURCES: The data for Preuss School students were obtained from the Preuss School using records provided by College Board. Further information can be obtained at the California Department of Education Web site at <http://data1.cde.ca.gov/dataquest/>.

A-G Completion

WHAT IS BEING MEASURED:

Admission to the California State University and University of California systems (as well as many private institutions) is predicated on several factors, one of which is the accumulation of a specified number of semester units in seven academic areas with a minimum grade of "C". Collectively these courses are known as the "A-G" requirement. Here we present information on the percentage of graduates completing the A-G requirement. The Preuss School has only one graduating class (the class of 2004) and data on the 2004 A-G completion rate for the State, San Diego County, and San Diego City Schools will not be available from the CDE until the fall of 2004. For this reason we include information on previous graduating classes in San Diego County, providing a frame of reference (rather than a basis for direct comparison) for the Preuss School completion rates.

NOTABLE FACTS:

- Every member of the Preuss graduating class of 2004 has completed the A-G requirement.

The first graduating class at Preuss had an A-G completion rate of 100% and the completion rate for the graduating classes of 2000-2003 in San Diego County ranged from a low of 35% to a high of 39% (Figure 15.1).

The 35.3% completion rate for San Diego County in 2003 is the average completion rate across the different racial and ethnic categories. Different ethnic groups have historically performed better or worse than that average. Figure 15.2 shows the San Diego County completion rate for each of the 8-racial/ethnic categories used by the CDE. The highest completion rate was for Asian students at 55.1% and the lowest was for Latino students at 20.1

The Preuss graduating class of 2004 was ethnically diverse with 56% Latino, 22% Asian, 16% African-American, 4% White, and 2% Filipino students. Using figure 15.2 as an historical reference, Preuss students are clearly doing well, especially with students from groups with traditionally low completion rates.

Figure 15.1

Percentage of Students Completing A-G Courses Classes of 2000-2004

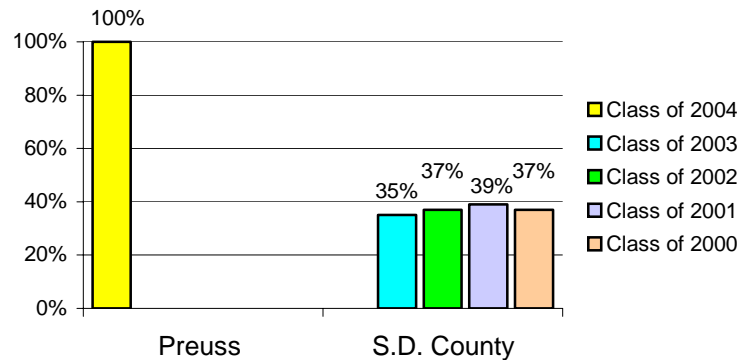
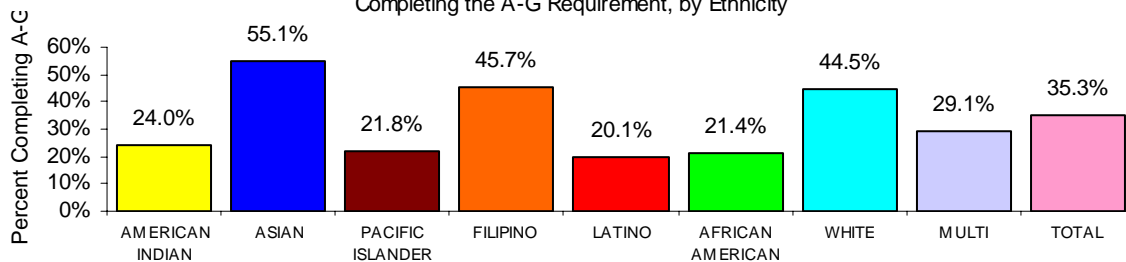


Figure 15.2

2003 San Diego County Graduates Completing the A-G Requirement, by Ethnicity



SOURCES: Data regarding "A-G" requirements can be obtained at the California Department of Education Web site at <http://data1.cde.ca.gov/dataquest/>. Information regarding Preuss students was provided by the Preuss School.

SAT I College Entrance Examination

WHAT IS BEING MEASURED:

The SAT I is a college entrance examination designed to measure the verbal and mathematical reasoning skills of applicants. The exam has a maximum score of 1600, with the verbal and mathematics subsections each worth a maximum of 800 points. Results of the test, along with other indicators (e.g., grade point average) are used to make admission decisions in both public and private colleges and universities.

NOTABLE FACTS:

- 98% of the 2004 graduating class at Preuss took the SAT I – a rate twice that found in California, San Diego County, and San Diego City Schools (SDCS).

Only 1 student in the Preuss 2004 graduating class failed to take the SAT I (Figure 16.1). The average combined score of the 2004 graduating class at Preuss (984) was similar to the average score recorded in California (1012), San Diego County (1028) and San Diego City Schools (1003) (Figure 16.2).

While it is important to report the performance of all Preuss SAT I test takers, this comparison tends to underestimate the actual performance of Preuss students. Almost all, 54 of the 55 (98%) Preuss students took the SAT I – from the best performing to the lowest achieving student. In California, 37% of all students took the SAT I, and it is likely that the majority of those taking the examination came from the top performing half of students.

For this reason, a more appropriate comparison looks at the top half of Preuss test takers and compares their performance against the state, county, and SDCS averages. Important differences begin to emerge with this comparison. The top half of Preuss test takers scored a combined SAT I of 1122 compared to the statewide average of 1012, county average of 1028, and SDCS average of 1003.

**Consistent with California Department of Education policy on confidentiality, we do provide information when the group size is less than 10. For this reason American Indian and White students are not included in Figure 16.2*

Figure 16.1

Percentage of Students Taking the SAT I
2002-2003

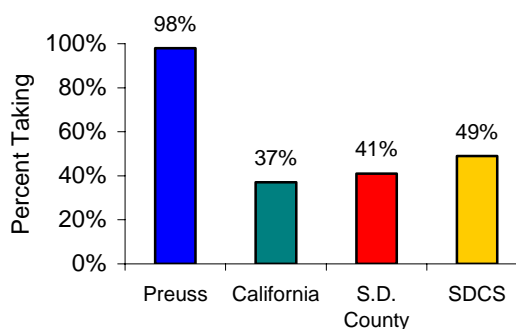
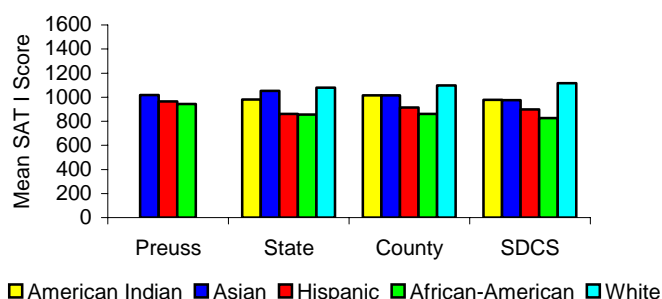


Figure 16.2*

SAT I Scores by Ethnicity - All Test Takers
2002-2003



SOURCES: The data for Preuss School Students was obtained from the Preuss School using records provided by Educational Testing Service and the College Board. State, county and San Diego Unified (SDCS) test taking rates were obtained from the California Department of Education Web site at <http://data1.cde.ca.gov/dataquest/>.

SAT II College Entrance Examination

WHAT IS BEING MEASURED:

Admission to the University of California (UC) requires that students take three Scholastic Assessment Test II (SAT II) subject tests including Writing, Mathematics Level 1 or Level 2, and one test in one of the following areas: English literature, foreign language, science or social studies. Student scores on the SAT II are used along with the SAT I, high school grade point average, A-G completion and other factors to determine eligibility and to make admission decisions. Here we report the scores of the Preuss 2004 graduates admitted to the University of California and the system wide average performance of students admitted to the University of California for the fall of 2004.

NOTABLE FACTS:

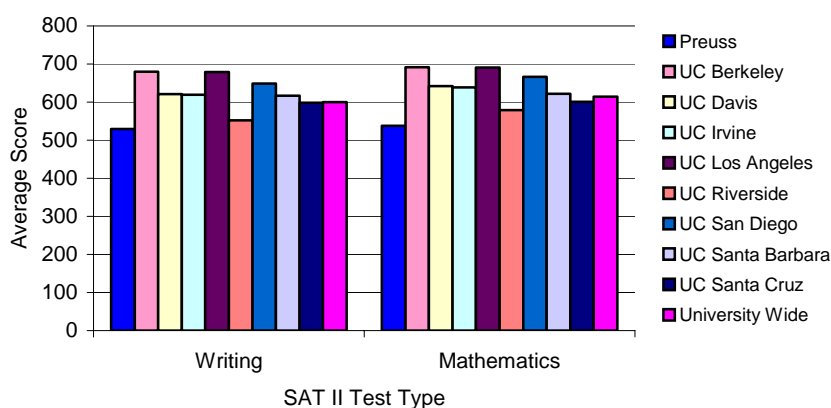
- Preuss admits to the University of California had lower average SAT II scores when compared to all UC admits.

For Preuss graduates admitted to the University of California, the average score on the SAT II writing examination was 529 and the average Mathematics score was 538.

Figure 17.1 compares the average score of Preuss students admitted to the University of California to both the campus averages and the UC system wide average.

Figure 17.1

Average SAT II Scores - University of California
Admitted Students - Fall 2004



SOURCES: We thank colleagues from the University of California, San Diego Student Research and Information group for aggregated SAT II data on Preuss students. The campus and system wide SAT II scores for accepted students were obtained from the University of California, Office of the President Web site at www.ucop.edu/news/studstaff.html

College Admission and Acceptance

WHAT IS BEING MEASURED:

This section of the report provides information on both University of California admissions and the “statement of intent to register” (SIR) for students in the 2004 graduating class. Completion of the SIR represents a commitment on the part of a student to matriculate at a particular college or university. Data on Preuss graduate “intent to register” was based on actual SIR’s completed through May 5, 2004.

NOTABLE FACTS:

- 100% of the 2004 graduating class will continue their education at 2 or 4-year institutions.

Test scores and grade point averages are important, but they are not the ultimate goal of the Preuss School. Acceptance to, matriculation, and success in college are the real goals of the school. Of the 54 (from a graduating class of 55) students who applied to the University of California, 64.8% were admitted to one (or more) of the campuses and 31.4% were admitted to UCSD. Of the remaining students, fourteen (25.9%) were offered “Dual Admission or Guaranteed Transfer” in which students enter the University of California as juniors after completing two years of community college coursework (Figure 18.1).

Acceptance information is useful, but the important question is “Where do Preuss students attend college?” This question is partially answered by looking at the “Student Intent to Register” (SIR). These forms are completed by students and represent a formal acceptance of an offer to attend made by a college or university. The staff at the Preuss School collected information from each student in the graduating class regarding their final college selection and submission of the SIR.

Strikingly, 100% of Preuss graduates will enroll in a four-year university or community college this fall. Figure 18.2 shows the percentage of students filing SIR’s with the various segments of higher education. A remarkable 43.6% of graduating seniors (24 of the graduating class of 55) have submitted SIR’s to the University of California (UC) and will be attending campuses throughout the system, including the most “selective” campuses; UC San Diego, UC Berkeley and UC Los Angeles.

Ten students will be attending private colleges and universities, including Dartmouth, Stanford, and the University of San Diego. Nine students (16.4%) will be entering the California State University (CSU) system in the fall, and San Diego State University, CSU Long Beach and CSU San Francisco are among the campuses selected. Twenty percent of the graduating class (11 students) will be attending local community colleges (CCC), either as dual admission or guaranteed transfer option students.

SOURCES: We are grateful to the UCSD admissions office and the Preuss School for providing the aggregated information needed to produce this section of the report.

Figure 18.1

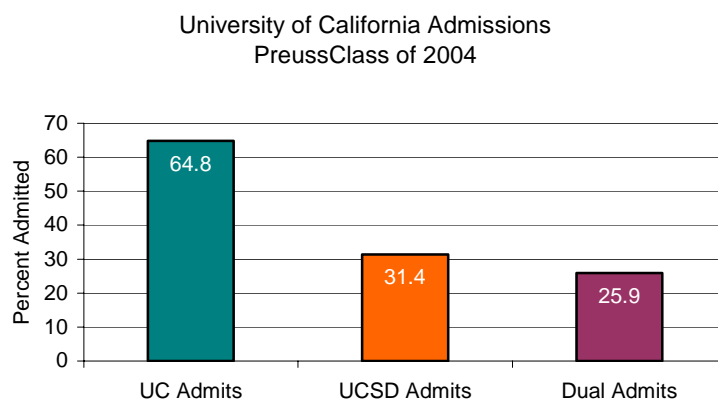
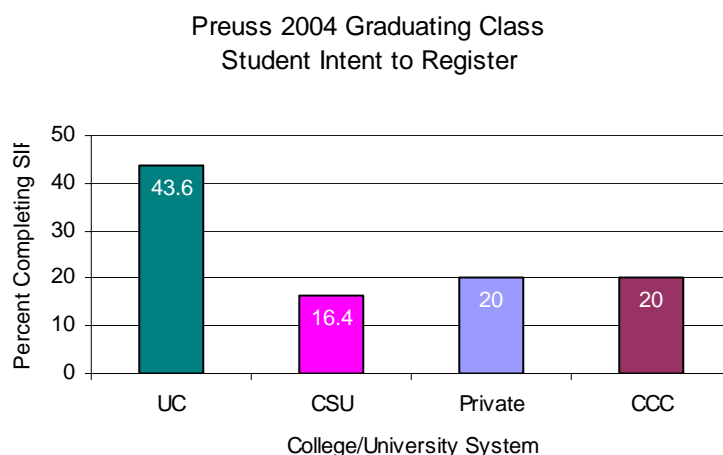


Figure 18.2



Part 3: Preuss School Students' and "Comparison Group" Achievement

OVERVIEW:

In the spring of 1999, the Preuss School accepted applications for the 1999-2000 academic year to fill available spaces in grades 6-8. Admission was restricted to those meeting specific demographic criteria (low income & parental education level) and required parents to complete an application that included their children's academic record, teacher recommendations, and personal statements. Several readers scored each completed application and identified applicants demonstrating academic potential⁴. Those exhibiting academic potential were accepted to the Preuss School or, if the number of applicants exceeded the available spaces (as was the case for the 6th and 7th grades), were entered into a lottery to determine admission.

The lotteries held for admission into the 6th and 7th grades in 1999 split the applicant pool into 2 demographically and academically matched groups: those accepted to the Preuss School, and those placed on a wait list for admission to the Preuss School (the Comparison group⁵). Because there are Comparison and Preuss groups for two grade levels, the 1999-2000 6th grade has been designated "Cohort 1" and 7th grade as "Cohort 2" for the purposes of this report.

We examine the performance of the Preuss and Comparison groups⁶ on several academic indicators from the 2002-2003 school year. Included are analyses of performance on standardized tests for both cohorts and grade point average and A-G course taking for Cohort 2.⁷ Because these students have just completed either 10th or 11th grade (2003-2004 school year) several important comparisons could not be made (graduation rates, college entrance examination scores, A-G completion rate and college acceptance, etc.). Comparison of group performance on these indicators will be included in future reports, as data become available.

Specific issues were addressed to ensure that the analyses presented were methodologically sound. Those issues distill to three questions:

1. Did the Preuss and Comparison groups have the same academic credentials prior to the start of the 1999-2000 academic year?
2. Was the amount of attrition different, or was the effect of attrition different for the Preuss and Comparison groups?
3. Does limited availability of data for districts other than San Diego Unified work against a fair assessment?

⁴ It is our understanding from discussion with personnel at Preuss that the criterion for "academic potential" was generous. Applicants were not required to demonstrate high academic achievement, only potential, defined as performance at or above the 50th percentile on one subtest of the Stanford 9. Students lacking a single subtest above the 50th percentile were also admitted if they had strong letters of support from teachers or personal statements that indicated academic potential.

⁵ San Diego City Schools (SDCS) has generously granted access to academic data for the students in the comparison group, allowing us to perform the analyses presented here. Only students in the comparison group who attended one of the San Diego City Schools are included in this report. There are two reasons for this restriction. The first is that the overwhelming majority of students in the comparison group were enrolled in SDSCS in the 1999-2000 academic year. The second is that the lack of a unified student tracking system in the State of California makes it impossible to determine where students attended school in the year(s) subsequent to Preuss application.

⁶ We examine the performance of those students who were either in continuous attendance at the Preuss School or in San Diego City Schools from 1999-2000 through 2002-2003.

⁷ Grade and course data for Cohort 1 Preuss students was not available electronically. The data systems at SDSCS were designed to accommodate semester grades and because Preuss uses a trimester system, the grade and course information cannot be accepted into the SDSCS databases. Until this issue is resolved, grade and course information for Preuss students comes from official school transcripts, which were available electronically only for Cohort 2.

OVERVIEW CONTINUED:

The answer to the first question is a qualified yes; the Preuss and Comparison groups for both cohorts appear to have started out with the same distribution of academic “talent”. Once the lottery had dichotomized applicants into Preuss and Comparison students, we compared group performance using the spring 1999 scores on the SAT-9 as indicators of academic performance. Statistical analysis indicated no significant group differences on these measures. Table 20.1 provides the scale score for each subtest, by group and cohort, and the observed *p* value for each test.

Table 20.1 1998-1999 Stanford-9 Mean Scale Scores – Cohorts 1 & 2

COHORT 1	PREUSS	COMPARISON	OBSERVED <i>p</i> VALUE
Mathematics	674	674	.997
Reading	673	675	.796
Language Arts	663	655	.062
Science	650	643	.130
Spelling	652	650	.682

COHORT 2	PREUSS	COMPARISON	OBSERVED <i>p</i> VALUE
Mathematics	695	688	.357
Reading	687	682	.488
Language Arts	668	672	.486
Science	663	666	.570
Spelling	673	672	.950

Being able to say that there was “no difference” on these measures is not the same as saying there were no academic differences between the groups. Having additional measures of academic performance (other than standardized tests) supporting the contention that the groups started the same would have been ideal, but there are very few objective performance indicators. We choose not to use academic grades as an indicator because grading standards (and grades) vary from school to school for reasons other than academic performance, especially in K-6. For this reason the best claim that can be made is that the available evidence does not suggest academic differences between the groups prior to the start of the 1999-2000 academic year.

The second concern was that, with the passage of time, the Preuss and Comparison groups might have experienced different rates of attrition or that the effect of attrition was selective or specific to a single group. Figures 20.2 and 20.3 show the initial group sizes and group attrition over time for Cohorts 1 & 2. After 4 years, the percentage of original members remaining in both the Preuss and Comparison groups, for both Cohorts, was remarkably similar. Cohort 1 had retained 68% (from 53 to 32 students) of Preuss and 75% (48 to 36) of Comparison group members and Cohort 2 had retained 79% (48 to 38) of Preuss and 80% (20 of 25) of Comparison group members. These retention rates do not suggest systematic differences in the losses suffered by Preuss and Comparison groups across the cohorts.

Figure 20.2

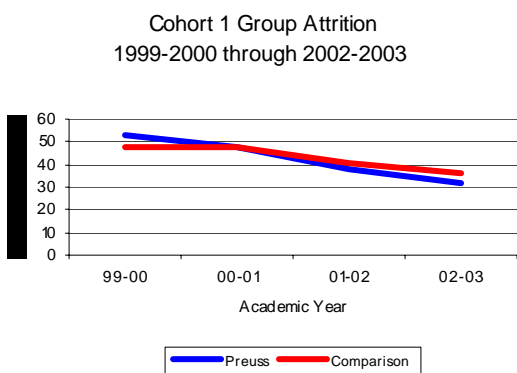
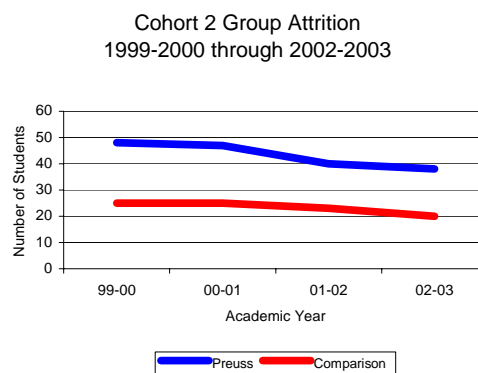


Figure 20.3



OVERVIEW CONTINUED:

While the percentage of students lost across groups and cohorts was similar, we were also concerned that the academic characteristics of the students who left might have been different in the Preuss and Comparison groups. In other words, our concern was that a consistent pattern where “good” (or poor) students were leaving from either the Preuss or Comparison group at a higher rate might influence group comparisons.

As can be seen in figures 20.2 & 20.3, the number of students leaving the groups was small and the small sample sizes were problematic for conventional statistical analysis due to very low statistical power. In those instances where sample size was large enough to perform statistical analyses, we used the subtests of the Stanford-9 (Mathematics, Reading, Spelling and Language Arts) as outcome measures to determine if the academic performance of those leaving a group was different from those remaining in the group.

For Preuss students leaving Cohort 1 in 2000-01, scores on the reading subtest were significantly lower than those who remained, and students leaving the Cohort 1 Comparison group during the same time period had significantly lower scores on the reading and spelling subtests (all with $p < .05$). These were the only observed differences. Students who left Cohort 1 (both Preuss and Comparison) in 2000-2001 were indistinguishable from students who remained on the Mathematics and Language Arts subtests and there were no observed differences for any other time. No differences were in evidence for Cohort 2 across subtest and time.

Because of our concerns about the statistical power associated with the significance tests, we manually checked the extent to which, in standard deviation units, the scores for each leaving student were different from the group mean for each subtest of the Stanford-9. With the exception of the three subtests in 2000-2001, where a statistical difference was in evidence, the students who left had scores on each of the subtests within +/- 1.0 of a standard deviation of the group mean with no consistent direction to the difference (plus or minus) or discernable pattern relating to subtest type.

Given the evidence of non-random attrition in the cases of Cohort I reading and Cohort I spelling, it is important to test whether the *remaining* samples of students in the Preuss and Comparison groups had identical initial scores. We performed these tests for all subjects and indeed, we could find no evidence of significant initial differences between the remaining groups. (The p-values ranged from 0.237 to 0.768.) Overall, attrition does not appear to have biased the evaluation.

This pattern of differences and the fact that the three significant results were in the same direction for both the Preuss and Comparison groups does not support the contention that a systematic loss of talented students impacted either the Preuss or Comparison group. It does not appear that either group gained an advantage (or suffered a disadvantage) as the result of attrition.

The third concern is that restricted data access might prevent a fair assessment of the Preuss and Comparison groups. It is the case that having access to only San Diego City Schools (SDCS) data (while invaluable) prevents us from tracking the academic progress of “wait-listed” students who applied to the Preuss School from other districts.

It is possible (although unlikely) that students from other districts were, in some way, systematically different from the students applying from within SDCS. If substantial numbers of students accepted to Preuss came from districts other than SDCS, and if the academic performance of those students was consistently different from SDCS applicants, then the potential to influence comparisons would exist.

To determine what influence this might have, we looked at the feeder district for all applicants in the 1999 lottery to determine if substantial numbers of students were selected into Preuss from outside SDCS. Of the 53 students admitted to Preuss Cohort 1, 51 (96%) applied from within SDCS. The results for Cohort 2 were nearly identical, with 46 of the 48 accepted students coming from SDCS.

Given that only 4 students were accepted from districts other than SDCS, there is little concern that our inability to follow students outside SDCS would influence the outcome of statistical analyses for these cohorts. While this appears to be the case for the 1999 groups, we will continue to monitor this issue closely in future lotteries as anecdotal evidence suggests that the rate of application from districts other than SDCS is increasing as public awareness of the Preuss School increases.

California Standards Test (CST)

WHAT IS BEING MEASURED:

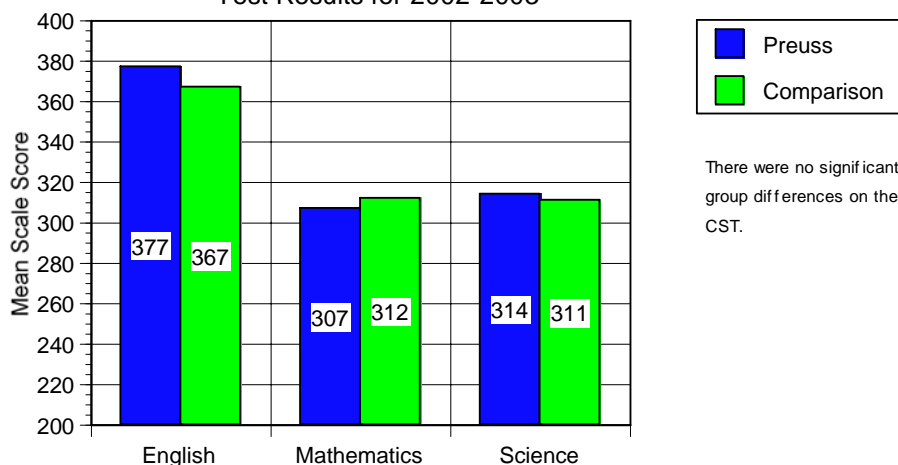
“The California Standards Tests in English language arts, mathematics, science, and history--social science are comprised of items that were developed specifically to assess students' performance on California's content standards. The State Board of Education adopted the content standards specifying what all California children are expected to know and be able to do. The content standards are grade and course specific” (SDCS Standards, Assessment and Accountability Division – 2003 STAR Report).

NOTABLE FACTS:

There was no evidence suggesting a difference between cohort one Preuss students and their matched comparison group (Figure 22.1) on the CST. CST performance was assessed using the mean scale scores⁸ on the English, Mathematics, and Science subtests. This measure was selected, rather than the categorical performance level, because it allowed for an “apples to apples” comparison of performance.

Figure 22.1 – Cohort One

Preuss v. Comparison 2003-2004 10th Grade
California Standards Test (CST) Scale Scores
Test Results for 2002-2003

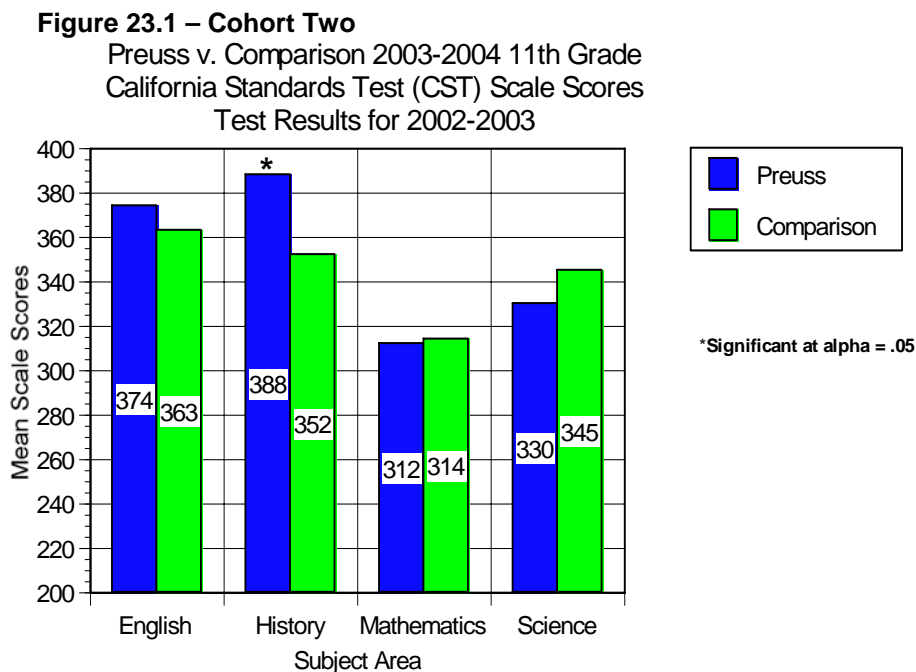


⁸ Mean Scaled Score - Raw scores identify the number of items answered correctly on a test or sub-test. Raw scores are limited in their measurement precision because of differences among test items. For example, some items are more difficult than others. A scaled score takes item differences into account and is calculated to provide a more precise measure of the knowledge or skills tested. Through this calculation, an increase of one point at one place on the scale is described as being equal to a one-point increase anywhere else on the scale. Scaled scores are particularly useful for reporting changes over time (California Department of Education).

California Standards Test (Continued)

Applying the same approach to Cohort 2 (figure 23-1), we find no statistical difference on the English, Mathematics, or Science subtests of the CST; however, there was a difference between the groups on the History/Social Science subtest ($p = .004$). There is corroborating evidence to suggest that this difference is not due to chance. When looking at the number of History/Social Science courses taken, Preuss students had accumulated twice as many of these courses relative to the comparison group by the end of the 2002-2003 academic year (see the cumulative A-G course comparison, pages 27-28 of this report). For that reason it is unsurprising that the Preuss students are demonstrating better performance on this subtest of the CST.

It is important to keep in mind that cohort one students are in 10th grade and that cohort two students are in the 11th grade in the 2003-2004 academic year. Group performance may change as additional years of data are added for this measure of academic performance.



California Achievement Test (CAT/6)

WHAT IS BEING MEASURED:

California Achievement Test ("CAT/6") was first introduced in the 2002-2003 school year and is used to assess student performance across a variety of subject areas: English language arts, spelling, mathematics and science. We report the mean scaled scores for both the Preuss and comparison groups, Cohorts 1 and 2.

NOTABLE FACTS:

Figures 24.1 and 24.2 provide information on the CAT/6 for Cohorts 1 & 2. There was no statistically significant difference between the Preuss and comparison groups of either cohort on the subtests of the CAT-6

Figure 24.1 Cohort 1

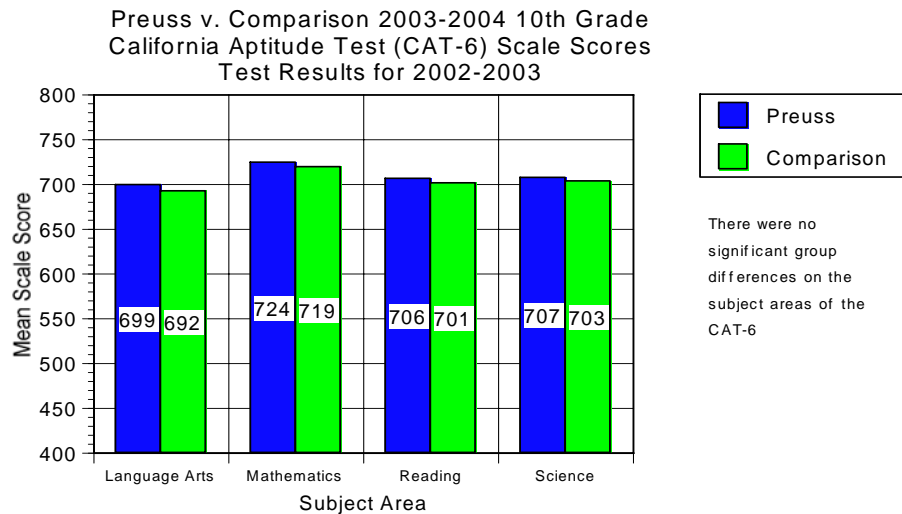
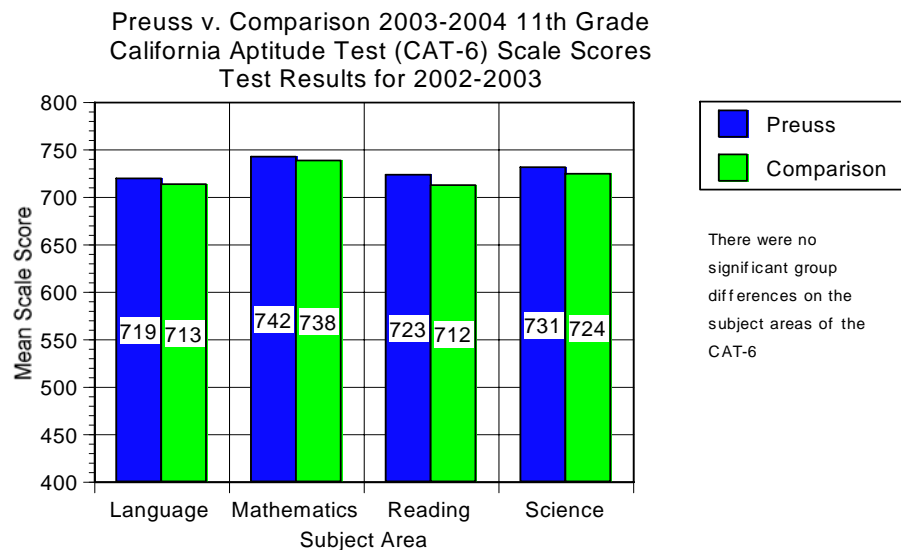


Figure 24.2 Cohort 2



Unweighted Grade Point Average

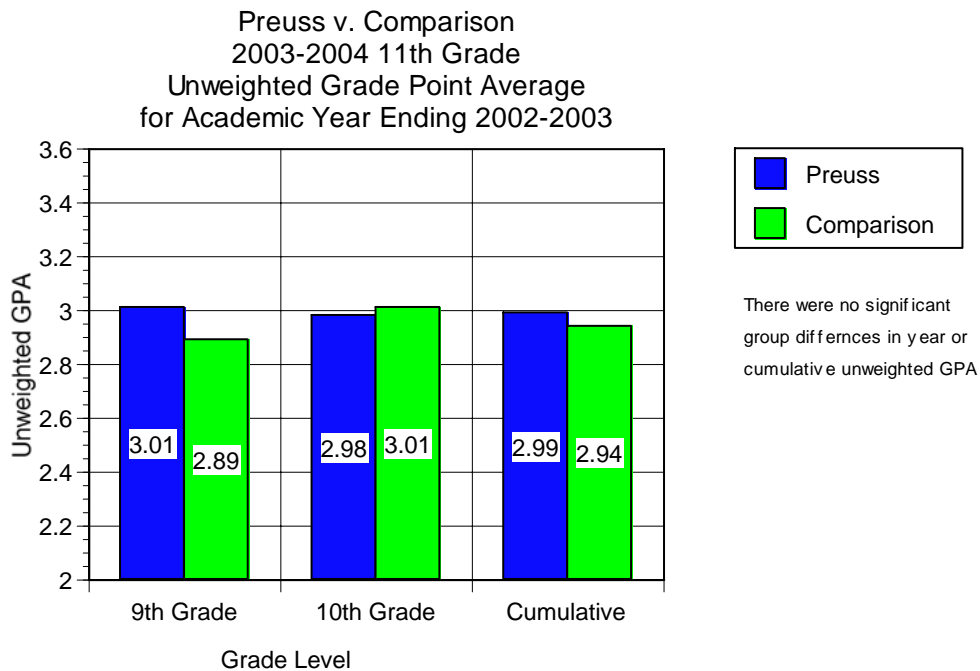
WHAT IS BEING MEASURED:

For every student, college admissibility is largely determined by three factors: grade point average (GPA), college entrance examination scores, and the courses taken during the high school years. Unweighted GPA represents the grades earned for courses taken without adjusting for course difficulty. Several course designations (e.g., advanced placement and honors courses) earn an additional grade point that rewards a student for the high relative difficulty of the coursework. The unweighted GPA of the cohort 2 Preuss and comparison students are presented in this section of the report.

NOTABLE FACTS:

Figure 25.1 depicts the unweighted GPA for Preuss and comparison group students in their 9th grade, 10th grade and the cumulative GPA through the end of 10th grade. Statistical analysis of the grades earned failed to detect group differences. Because these students are only midway through high school it is possible that group differences will emerge as additional years of course work are included in the analysis.

Figure 25.1 – Cohort 2



Weighted Grade Point Average

WHAT IS BEING MEASURED:

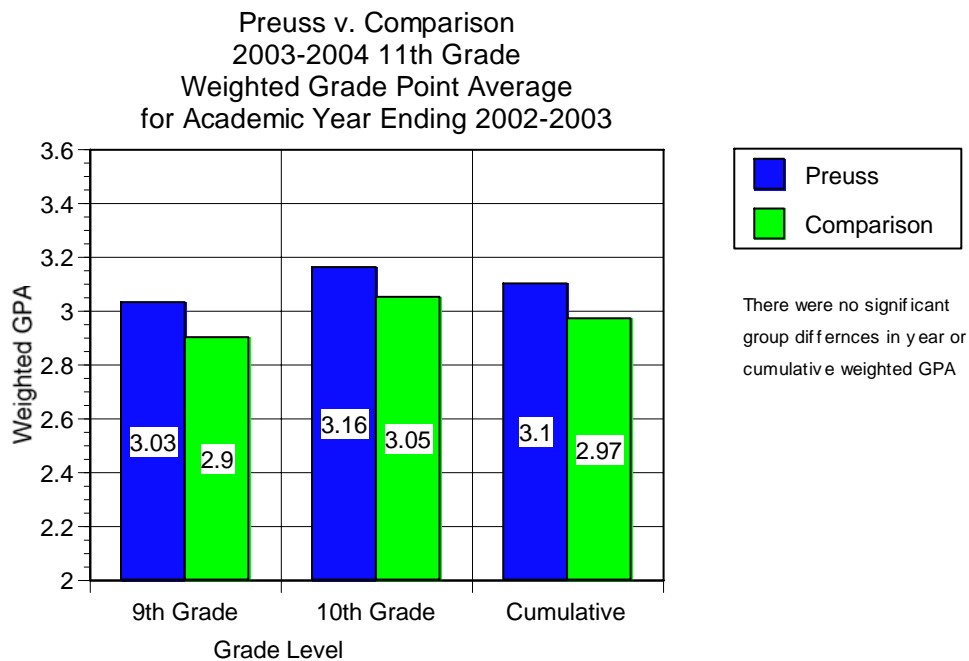
The weighted GPA of the cohort 2 Preuss and comparison students are presented in this section of the report. Students earn additional grade points for each advanced placement and honors course taken and passed, and these additional grade points are factored into the weighted GPA. Colleges and Universities use the weighted GPA in making their admission decisions.

NOTABLE FACTS:

Figure 26.1 depicts the weighted GPA for Preuss and comparison group students in their 9th grade, 10th grade and the cumulative weighted GPA through the end of 10th grade. Statistical analysis of the grades earned failed to detect group differences. While there was no statistical difference between the groups, as data for the remaining two years of high school are added to the analysis it is possible that group differences will emerge.

While it may be tempting to look at figure 26.1, note consistent differences between the groups and attempt to interpret the difference as a “trend” or “early indicator”, it is important to remember that there was no statistical difference and the lack of observed statistical significance prohibits this type of speculation.

Figure 26.1 – Cohort 2



Cumulative “A-G” Courses

WHAT IS BEING MEASURED:

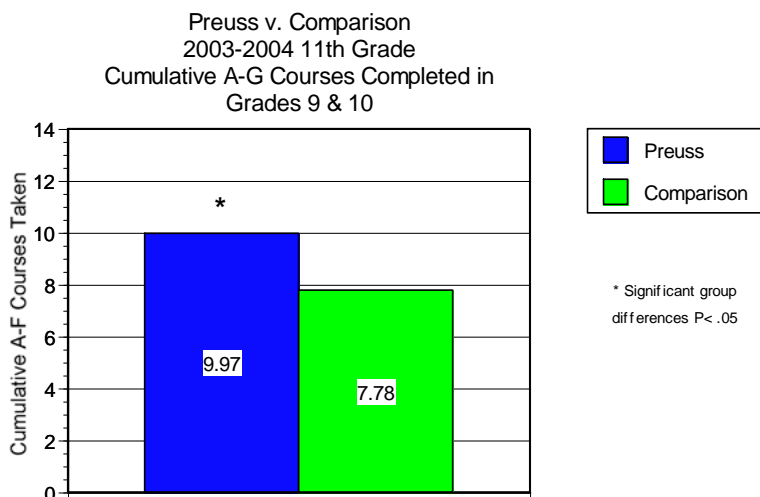
The University of California and the California State University have jointly determined both the subject areas and number of courses a student must take and pass (with a grade of “C” or better) to be eligible for admission to public four-year institutions in California. Collectively, these requirements are referred to as the “A-G” requirement. The following table shows each of the subject areas and the minimum and recommended number of years of study required for college eligibility:

REQUIREMENT	SUBJECT AREA	YEARS OF STUDY REQUIRED
“A”	History / Social Science	2
“B”	English	4
“C”	Mathematics	3 required, 4 recommended
“D”	Laboratory Science	2 required, 3 recommended
“E”	Language other than English	2 required, 3 recommended
“F”	Visual & Performing Arts	1
“G”	Electives	1
	Total Years	15 required, 18 recommended

NOTABLE FACTS:

- By the end of 10th grade, Preuss students had completed significantly more A-G courses.
- Preuss students had taken more History/Social Science, Foreign Language, and Elective courses.

Figure 27.1 – Cohort 2



Collapsing across the A-G subject areas and counting the number of years of study needed to meet all requirements, a student must complete a total of 15 years of study for minimum eligibility. A statistical analysis of the cumulative A-G courses taken and passed by the two groups reveals a significant difference in the number of courses taken. The Preuss students had, at the end of tenth grade, taken and passed the equivalent of 9.97 years of A-G course work while students in the comparison group had taken an average of 7.78 years (Figure 27.1).

Cumulative “A-G” Courses (Continued)

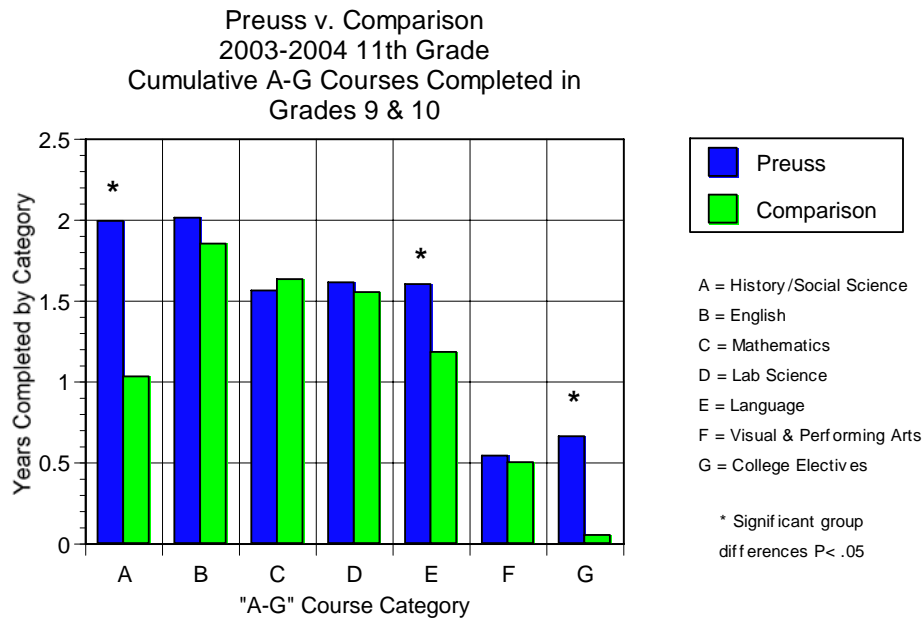
The Preuss students, at the mid-point of high school, are roughly two-thirds of the way to the 15-year-long course minimum requirement, while the comparison group has accumulated slightly more than half. Course accumulation, especially in the first two years of high school, is critical because there is little opportunity to “make-up” courses that were skipped or failed in the time remaining to graduation.

A comparison of the years of A-G courses completed is important because it provides a rough indicator of early progress. It’s also true that the margin for error is quite small and that without careful planning, a student can find that they’ve taken enough “years” of A-G courses and failed to meet the A-G requirement because they took few courses in a particular subject area. Figure 28.1 provides information on the number years accumulated, by A-G subject area, for the Preuss and comparison groups.

Statistical analysis of the course taking patterns of the two groups reveals significant differences in three areas of the A-G. Preuss students had, at the end of 10th grade, accumulated significantly more courses in the “history/social science”, “language other than English”, and “elective” categories of the A-G.

On average, Preuss students had accumulated 2 years of history/social science, meeting the eligibility requirement for that subject. This is important because it allows them the opportunity concentrate their efforts on the remaining subject areas and accumulate the additional courses needed to meet the “recommended” standard at graduation. Averaging roughly two years of English, both Preuss and comparison students appear to be on track to meet the required four years and if the trend remains consistent until graduation, both groups will meet the “recommended” level of lab science courses. With an average of 1.6 years of “Language other than English”, the Preuss group has nearly completed the required minimum of two years and appears on track to meet the recommended years of study. Both groups have completed half of the required year of visual and performing arts and the Preuss students have completed more than half of the “electives” requirement, whereas few of the students in the comparison group have started to take these courses.

Figure 28.1 – Cohort 2



Part 4: Measuring the Impact of Attending the Preuss School: A Comparison of Academic Outcomes

BACKGROUND:

A troubling pattern in American education is the extent to which the socioeconomic status of students predicts academic achievement. Students from more affluent and well educated families attend schools that offer more college-prep courses, have teachers with more qualifications, and material resources such as laboratory equipment (Oakes, 1985; Haycock, 1997; Mehan and Grimes, 1997; Betts, Rueben and Danenberg, 2000). This combination of family SES and quality of schools is, in turn, associated with higher academic achievement and economic success. Students from well-to-do families, attending high quality schools, have higher test scores, higher graduation rates, higher college attendance rates, and later in life, higher earnings.

Against this backdrop, in 1999 the University of California San Diego (UCSD) opened a new charter school called the Preuss School on the UCSD campus. This charter school has a very specific mission: to develop a new approach to breaking the link between socioeconomic status and academic outcomes. To this end, the school reverses a common educational pattern. Instead of segregating students by ability and offering a differentiated curriculum, the Preuss School offers all students a very rigorous academic curriculum supported by a differentiated system of academic and social supports, including a longer school day, a longer school year, intensive tutoring, and parent education opportunities (Mehan et al., 1995). The school admits only students who qualify for federal meal assistance, and whose parents have not graduated from a four-year college. The School seeks students who show academic promise but who may not have lived up to their full academic promise. In practice, this means that to be eligible to attend the school, students must show either strong motivation to succeed through their application essay, a strong letter of recommendation from a teacher, or some indication of academic promise. For example, a student with below average grades but with at least one test score that is at the 50th percentile or higher on California's tests of math and reading will likely fit this profile. Alternatively, a student might not have very high test scores but reasonable grades and a letter of recommendation from the student's current teacher suggesting that the student needs a bigger challenge than his or her current school is providing. Each year, depending on the number of applicants and the space available, a lottery is held to randomly select which applicants fitting this profile are offered admission to the School, with students unsuccessful in the lottery placed on a waitlist. By comparing students who were admitted by random drawing with applicants in the same year and grade that were not randomly drawn, one can test the proposition that attending the Preuss School *causes* better academic outcomes. Thanks to a data-sharing agreement signed between UCSD CREATE and the San Diego Unified School District (SDUSD) the report is able to provide such an analysis for lottery participants from SDUSD.

PRELIMINARY FINDINGS:

Three broad patterns emerged from this analysis. First, Preuss School students completed significantly more A-G courses needed for entry to UC than did their counterparts who remained in regular public schools in SDUSD. By the end of the 2002-2003 school year, grade 10 students at Preuss had successfully completed 10.0 A-G courses, compared to only 7.8 for students in the comparison group. The Preuss students' advantage derives from having taken more history/social science courses, language courses and A-G electives. Second, for the most part test scores between Preuss and comparison students are statistically indistinguishable. An important exception is that Preuss grade 10 students in 2002-2003 scored significantly higher in history than did comparison group students. This is a notable finding, because the biggest difference in course-taking patterns between the two groups of students is precisely in history and social science. Third, the high school grade point average (GPA) of Preuss students is statistically indistinguishable from that of comparison group students.

It is important to emphasize that these results are necessarily preliminary, as they compare quite small groups of students who participated in the admission lotteries in the first year of the School's operation. In the future, as the total number of lottery participants grows, differences in student outcomes that at present are statistically insignificant could become significant.

PUTTING THE FINDINGS INTO CONTEXT:

To provide some perspective on what the wealth of statistics above really means, we now relate these results to the existing literature on student outcomes.

What do Test Scores, Course-Taking Patterns and College Enrollment Tell us about Long-Term Outcomes?

A first question in many readers' minds could well be: "Why should we care about test scores, courses taken, or college enrollment?" Empirical studies of educational outcomes suggest some tentative answers. First, higher test scores themselves do not guarantee students happiness or a career. However, Griliches and Mason (1972) established that people with higher test scores do tend to earn significantly more once they enter the labor market. This finding matters because most would agree that earnings of a student later in life contribute directly to his or her welfare. This linkage between test scores and earnings appears to have grown between the 1970's and the late 1980's.⁹ Still, economists have repeatedly shown that test scores can explain only a small percentage of the overall variation in wages, typically on the order of 2-3%. For this reason, we need to be cautious about reading too much into differences – or a lack of differences – in test scores between Preuss and comparison group students.

Second, courses taken in high school appear to bear a direct relation to outcomes more directly related to a person's welfare, such as college graduation and earnings. Rose and Betts (2001, 2004) show that even after controlling for a high school student's ability and motivation, the number and academic rigor of courses he or she takes are quite strongly related to earnings a decade after graduation. Part of this effect derives from the impact of courses completed on college attendance, and part stems from a direct effect on labor market productivity. For this reason, the evidence that Preuss students have completed a greater number of college preparatory classes than have students in the comparison is potentially important.

Third, many studies have established that attending a university, especially a university with high admissions standards, is associated with significant gains in earnings.¹⁰ Although this year's graduating class was not admitted by lottery (because of low application rates for grade 8 in the initial lottery in spring 1999), we cannot state with any certainty whether attending Preuss *causes* an increase in postsecondary attendance rates. Nonetheless, we note that 100% of the Preuss graduating class has postsecondary plans for fall 2004, with 80% filing statements of intent to register in four-year colleges and universities, and 20% opting for community college. These postsecondary aspirations augur well for the future of this cohort.

LIMITATIONS OF THE QUASI-EXPERIMENTAL ANALYSES:

The descriptive analysis in the first two parts of the report provides a rich portrait of who is at the School and documents that the School has high test scores. Part 3, by virtue of providing a valid comparison group, provides a much more informative analysis of whether attending the Preuss School *causes* higher student achievement. The randomization inherent in the admissions lotteries is of crucial importance. However, we reiterate that small sample sizes in the initial lotteries that this report examines effects our ability to detect effects. It will take time to accumulate the number of admissions "experiments" to a point where we can be statistically confident if and in what areas Preuss is producing an impact.

SHORT-TERM VERSUS LONG TERM IMPACTS:

In providing context for this first evaluation of the Preuss School, it is useful to survey the wider literature on the impact of charter schools on student achievement. A central point that emerges is that students often suffer temporary setbacks when they switch to a charter school, and that charter schools often under perform in their first year of existence due to startup issues. A number of studies have illustrated these points by examining individual student test-score gains for students before and after they enter charter schools. In Texas, Gronberg and Jansen (2001) found mixed results with charter schools slightly outperforming regular schools with disadvantaged students and underperforming with advantaged students. They also found that charter schools in their first year of operation underperformed other charter schools, perhaps indicating some growing pains. Recent work using Texas school data by Hanushek, Kain, and Rivkin (2002) points in similar directions. Similarly, Solmon, Paark, and Garcia (2001) perform a fixed effect analysis of gains in student achievement in

⁹ See Grogger and Eide 1995 and Murnane, Willett and Levy 1995.

¹⁰ See for instance James et al. (1989).

Arizona. They reach stronger conclusions, finding that attending a charter school is associated with slightly higher reading scores and with math scores that are about the same. They also show that the first year a student attends a charter school his or her scores may drop but subsequently recover. Similar work has been done for a handful of California districts. (Zimmer et al., 2003)

Given this evidence that charter schools typically suffer from startup problems in their first year, and that students who switch to charters often suffer temporary drops in achievement gains, it is interesting that some of our unpublished analysis of the early years of the Preuss School has not revealed any drop-off in student performance relative to peers in the comparison group, and in addition we have never detected any "switchers' drop off" in achievement for students who opt to come to the Preuss School. Perhaps the more fundamental point is that education reforms typically require a number of years to take hold fully. For this reason, there is ample reason to believe that the Preuss School will have the opportunity to improve in quality as teachers and administrators gain further experience with running such a complex educational program.

CONCLUDING COMMENTS:

CREATE intends to publish follow-ups to this report each year. With the passage of time, as the body of evidence grows, we will be able to say much more about the ways in which the Preuss School has contributed to student achievement and to more meaningful life outcomes such as college attendance and graduation.

Overall, the students of the Preuss School have already made some impressive strides. We see a School that has high average achievement in spite of the relative socioeconomic disadvantage of its student population. We see a School where students appear to be completing more college preparatory courses than students in the comparison group. We also see a School that has already produced a fine graduating class. All members of the graduating class have postsecondary plans, with 80% signing statements of intent to register at universities and colleges throughout California and around the nation, and 20% intending to register at community colleges.

Given these beginnings, we re-emphasize the need to be cautious in interpreting the data in this report, given that the School is only in its fifth year, and the numbers of students in our comparisons are still relatively small. Over time, successors to this first report will include more data, allowing us to determine the mechanisms behind the School's successes and areas in which the School can continue to improve.

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