



The Preuss School at UCSD
Academic Performance of the Class of 2006

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Executive Summary

This report presents information on the academic performance of students who graduated from the Preuss School in 2006 and comparison group students who applied to the school in 1999, but did not “win” acceptance to the school via a random lottery. Preuss students and comparison group students are compared on the standardized tests they took when they initially applied to the school, while in middle and high school, as well as their high school grade point averages and A-G course completion rates. Because we were unable to obtain information about the comparison group’s SAT scores and college-going information, only information about the Preuss School Class of 2006 is reported for these indicators.

When the initial applicant pool to the Class of 2006 was split by the lottery into the Preuss and comparison groups, we were concerned that the “luck of the draw” may have concentrated academically talented students into one group relative to the other. A statistical analysis of pre-lottery standardized test performance suggests that this was not the case and that any differences between the groups emerging over time are likely the result of a school effects. Major group differences on important academic indicators appear in the following areas:

- There were no consistent differences between the groups, over time, on standardized tests taken in grades 6-12; although it appears that the Preuss students scored better in English language related tests in 10th grade and marginally better in 11th grade.
- Preuss students completed the courses required for admission to public colleges and universities at a much higher rate than students in the comparison group.
- Preuss students had consistently higher grade point averages at each grade level and in the cumulative averages at graduation. The half grade point difference in the cumulative weighted grade point average was large enough to impact college eligibility and the competitive standing of college applications.
- 78% of Preuss graduates filed a “Statement of Intent to Register” with the University of California, the California State University, or private four-year institutions. Of the remaining 22%, the majority continued their education at a community college and entered into a guaranteed transfer agreement, allowing for eventual transfer to either the UC or CSU systems.

Section 1: School Characteristics & Possible Issues in the Analysis

Overview:

The Preuss School is a grade 6-12 charter school located on the campus of the University of California, San Diego. It 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. In the spring of 1999, the Preuss School accepted applications to fill spaces in grades 6, 7, and 8 for its first year of operation in the 1999/2000 academic year. Seven years later, the Preuss School had reached its maximum enrollment of approximately 800 students. It is anticipated that future intake to the school will occur primarily in the 6th grade, with about 125 students accepted each year.

Tables 1.0.1 through 1.0.3 show 2005/2006 academic year enrollment by grade level, the Race/Ethnicity of students, and the average class size in selected subject areas. Teachers at the Preuss School have a slightly higher per-pupil ratio when compared to the San Diego Unified School district, 21.1 versus 18.1, respectively. Of the 39 teachers at the school, only one was not fully credentialed.

Table 1.0.1 Enrollment by Grade – 2005/2006 Academic Year

Grade	Enrollment
Grade 6	118
Grade 7	129
Grade 8	132
Grade 9	128
Grade 10	116
Grade 11	86
Grade 12	89
Total	798

Source: California Department of Education, Educational Demographics Office (CBEDS)

Table 1.0.2 Enrollment Race/Ethnicity 2005/2006 Academic Year

	SCHOOL		DISTRICT
	Enrollment	Percent of Total	Percent of Total
American Indian	0	0.0%	0.5%
Asian	158	19.8%	8.7%
Pacific Islander	0	0.0%	1.0%
Filipino	20	2.5%	6.9%
Hispanic	470	58.9%	43.5%
African American	102	12.8%	13.9%
White	48	6.0%	25.6%
Multiple/No Response	0	0.0%	0.0%
Total	798	100%	100%

Source: California Department of Education, Educational Demographics Office (CBEDS)

Table 1.0.3 Average Class Size 2005/2006 Academic Year

	<i>School</i>		<i>District</i>
	<i>Number of Classes</i>	<i>Average Class Size</i>	<i>Average Class Size</i>
Schoolwide	185	26.7	27.8
English	31	26.4	28.6
Math	35	25.6	29.5
Social Science	20	26.3	29.9
Science	28	26.7	30.7
Source: California Department of Education, Educational Demographics Office (CBEDS)			

The Preuss School admits only students who qualify for federal meal assistance and whose parents or guardians 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. Admission to the school follows a two step process: screening and selection by lottery. In the screening step, several readers score each completed application and identify students/families meeting the demographic criteria and demonstrating academic potential¹. If space is available, all students are admitted to the school. If the number of screened applicants exceeds the spaces available, a lottery is held and the results of that random drawing determine which students receive an offer of admission to the school. Students who are unsuccessful in the lottery are placed on a waitlist² and these students are admitted if and when space becomes available. Members of the Preuss Board have told us that the number of applicants to the school has increased and that they expect to hold a lottery for admission to 6th grade into the foreseeable future.

Because the lottery splits the applicant pool into two demographically matched groups, accepted and wait-listed students, we may follow the progress of students over time in a quasi-experimental fashion and determine if (and how) the groups differ on several academic indicators³. Here we report and compare the performance of the Preuss and comparison groups statistically across four sets of academic indicators: standardized tests, unweighted and weighted GPA, progress toward (or completion) of A-G admission requirements and the SAT-1 college entrance examinations.

1 It is our understanding, from discussions with personnel at the Preuss School, that the criteria used to determine “academic potential” was not restrictive. 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 (or the current State mandated standardized test). 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.

2 Students who are not admitted via the lottery are “wait-listed” at the Preuss School are offered admission, in subsequent years, as space becomes available in a priority based on their “lottery number” from the initial draw.

3 We are grateful to the San Diego Unified School District, which has generously granted access to academic data for the students in the comparison group, allowing us to perform the analyses presented. Only students in the comparison group who attended one of the San Diego City Schools are included in this report.

Possible Issues in the Analysis:

Before we could have confidence that the results we report were based on a fair and transparent treatment of the data, several issues needed to be addressed. We examined the data extensively and three issues were of particular concern because they could work against an isolation of school effect, or require the application of different statistical methods. The three areas of concern were:

1. Pre-Lottery Standardized Test Performance. Did the Preuss and Comparison students start out at similar levels? This is important because “luck of the draw” in a single lottery drawing could result in an uneven distribution of academic talent in the resulting groups.
2. Attrition. Was there a difference in the number of students leaving the Preuss or comparison group, over time, and were the students who left the groups substantially different from those who started with the group? We wanted to know if attrition, rather than learning and school characteristics, could be influencing our analyses.
3. Access to student records. If we are unable to gain access to the academic records of some students, at what point does this work against a fair assessment of the academic achievement of the two groups?

1) Pre-lottery standardized test performance:

Any time that a single lottery is used to separate a pool of students into two groups it can result in an unequal distribution of attributes, for example, more girls in one group than the other. Because of the Preuss entrance requirements, all students/parents entered into the lottery meet specific income and education criteria, and it is likely that all applicants possessed a high motivation to achieve academically. For these reasons, the lottery would have no effect on the distribution of these important demographic characteristics; each group received students with matching demographic and motivational characteristics. However, the lottery did not guarantee that Preuss and comparison groups would receive students with equal academic prowess. Simple “luck of the draw,” might have resulted in more students with high (or low) achievement concentrated in either the Preuss or comparison group. Because of this concern, we examined the “pre-lottery” academic performance of the students in the two groups to determine if differences existed and if those differences were statistically and practically important.

We chose to use standardized test scores as the measure to determine if the two groups started out with similar academic characteristics. The choice was not made because of the innate superiority of standardized test scores as a measure, but for the simple reason that there was no other set of objective measures consistently available across school sites. We deliberately chose not to use academic marks (i.e., GPA) as a baseline indicator because standards (and marks) vary from school to school for

reasons other than academic performance; this is especially true in elementary school grades K-6, where a narrative or other type of progress indicator is often used instead of GPA. When the pre-lottery standardized test performance for Preuss and comparison groups is statistically indistinguishable (by convention, an observed p -value greater than 0.05), it important to remember that being able to say that there was “no statistically significant difference” is not the same as saying that we are positive that no academic differences existed between the groups. Also, had other measures of academic achievement been available, those measures might have demonstrated group differences. The best claim that can be made is that available evidence did not support a claim of academic difference between the groups, for the measures used.

To determine if the pre-lottery performance of the Preuss and Comparison groups within a graduating class was different, we compared scaled⁴ scores from tests administered in the spring of the application year. Table 1.1.1 shows the group performance on the standardized tests (significant observed p -values are noted with an asterisk) for the Class of 2006. Looking at the tables it is clear that both the Preuss and comparison groups demonstrated remarkably similar scores on pre-lottery performance.

In practical terms these results tell us that, based on these measures, there is no evidence suggesting a statistically or practically significant initial difference in the distribution of academic talent in the Preuss and comparison groups. As long as the attrition rate for the groups was stable and did not favor either the Preuss or comparison group, any differences observed in standardized test performance in subsequent years were likely due to school effects.

Table 1.1.1 Class of 2006 - Pre-Lottery Standardized Test Results

TEST SUBJECT AREA (YEAR TAKEN)	PREUSS AVERAGE SCALE SCORE	COMP. AVERAGE SCALE SCORE	P-VALUE
SAT9 Language Arts 5 th (1999)	665 (N=23)	664 (N=32)	0.828
SAT9 Mathematics 5 th (1999)	676 (N=23)	676 (N=32)	0.990
SAT9 Reading 5 th (1999)	675 (N=23)	679 (N=30)	0.679
SAT9 Science 5 th (1999)	650 (N=23)	650 (N=31)	0.961
SAT9 Spelling 5 th (1999)	652 (N=23)	664 (N=32)	0.215

⁴ Scaled scores are raw test scores which have been adjusted to account for content differences in versions of a standardized test. They allow for an “apples to apples” comparison of test performance. “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).

2) Effect of attrition:

Our second concern was that the Preuss and comparison groups might have experienced different rates of student loss over time and that, even if both groups lost the same percentage of students, the students who left one group may have been qualitatively different from the students that left the other group. For example, if the Preuss group lost only high-performing students while the comparison group lost a representative group of students, an unequal and unfair comparison would be created between the two groups. A Preuss loss of only high-performing students may have resulted in lower average academic performance scores for Preuss, relative to what they would have been without such attrition. The comparison group would not have experienced this, thus the unfair comparison. Concentration of high or low performing students in a group due solely to attrition would affect the average performance of a group for reasons unconnected to student knowledge or school effects.

To test for this we computed the average pre-lottery test score of all the initial members of the Preuss group and then computed the average pre-lottery test score for all students who remained in the group at the end of the 2005/2006 academic year (Final Group). The process was repeated on the comparison group. Table 1.1.1 shows the results of those calculations. To determine the net effect of attrition, the final column was calculated: (Preuss Final Members - Preuss Initial Members) - (Comparison Final Members - Comparison Initial members). A positive number (expressed in scale score points) means that attrition tended to raise the test scores of the final Preuss group relative to the comparison group, while a negative number means the opposite, that attrition tended to raise the test scores of the final comparison group relative to the Preuss group.

For the Class of 2006 the effect of attrition was very small and in favor of the comparison group. Students who left their respective groups tended to have slightly lower test scores than those who remained in their groups, but the effect on the comparison and Preuss group averages was approximately the same and this result argues that attrition did not introduced a systematic bias favoring either the Preuss or comparison group. In practical terms this means that any differences observed between the groups was likely the result of student learning or school effects.

Table 1.1.1 Class of 2006 Pre-Lottery Test Scores: Effect of Attrition

TEST SUBJECT AREA (YEAR TAKEN)	PREUSS (FINAL)	PREUSS (INITIAL)	COMP. (FINAL)	COMP. (INITIAL)	EFFECT
SAT9 Language Arts 5 th (1999)	665 (N=23)	662 (N=53)	664 (N=32)	656 (N=71)	-5
SAT9 Mathematics 5 th (1999)	676 (N=23)	674 (N=53)	676 (N=32)	674 (N=72)	0
SAT9 Reading 5 th (1999)	675 (N=23)	672 (N=52)	679 (N=30)	675 (N=70)	0
SAT9 Science 5 th (1999)	650 (N=23)	650 (N=52)	650 (N=31)	644 (N=68)	-6
SAT9 Spelling 5 th (1999)	652 (N=23)	653 (N=52)	664 (N=32)	650 (N=72)	-15

3) Effect of data availability:

The analysis of the effect of attrition tells us that the inability to track students leaving Preuss and comparison groups did not prevent a fair comparison of student performance. We currently have access to student level data from the San Diego Unified School District (SDUSD) and while this access is invaluable, we are concerned that future applicant pools may draw an increasing number of students from outside SDUSD, and that this increase may impact our ability to track students in the comparison groups.

As more students from outside SDUSD apply to Preuss, it naturally follows that these students will have greater representation in the post-lottery comparison groups. It is projected that future lotteries will be held for entry into the 6th grade; so it is likely that unsuccessful lottery participants from schools outside SDUSD will elect to complete elementary school (grades K-6) at their current school, rather than emigrate to a SDUSD elementary school. This could result in an immediate “loss” of comparison group student level data as it is unlikely that we will have immediate access to data from those school districts.

A second issue has to do with students in the comparison group leaving SDUSD schools. Students not returning to their school in the following term (or academic year) are not required to report the transfer to their current school or provide information on the new school they plan to attend. This is problematic because we will not be able to determine where (or if) students are continuing their education. Even if this knowledge were consistently reported and readily available, it is a strong assumption is that the school districts that receive those students would be receptive to a data sharing agreement allowing the release of student level data required for analyses. Complicating this issue further are the subset of students who drop out of high school, do not take tests and are not tracked by any school district; these students lost for analysis purposes.

We are working with the Preuss School to address these potentially serious problems by modifying the application to the school so that parental consent is obtained for the release of contact information (home and cell phone, home address) as well as access to current and future academic records. We will attempt to negotiate data sharing agreements with additional school districts as the need arises, but even with these additional steps, data availability remains a potentially serious problem which will be monitored closely and addressed in future reports.

Section 2: Issues Surrounding Standardized Test Performance

In this section and the section that follows, we examine the standardized tests taken by the Class of 2006 from 6th grade through graduation. Over the past several years, the State of California has repeatedly changed the standardized test used to assess student performance and, because of these changes, the results of three different tests are reported: the Stanford Achievement Test, Version 9 (SAT-9), California Achievement Test, Version 6 (CAT-6) and the California Standards Test (CST).

Both the SAT-9 and CAT-6 tested students using several examinations and each year students took examinations that were grade and subject specific (e.g., 9th grade English). The examinations were “vertically integrated;” constructed so that test results within a subject area could be directly compared from one year to the next. For example, knowledge demonstrated on the Language Arts SAT-9 (or CAT-6) could be statistically assessed by comparing the year over year scaled scores earned by students on that examination.⁵ Both the SAT-9 and CAT-6 examinations were replaced by the CST. While some CST subject tests are tied to specific grade levels and taken by all students (e.g., English and History), Mathematics and science examinations are linked only to the courses taken by students and are independent of grade level. For example, there is no longer a 9th grade Mathematics examination; students taking Algebra I in the 8th or 9th grades would both take the same CST Algebra I examination. The CST is not vertically integrated and because of this the scores from one year cannot be compared to test results from other years.

For the purposes of this report, there were two unintended consequences associated with the introduction of the CST; smaller groups available for statistical analysis and differences in the courses (and tests) taken by students in the two groups. Table 2.1.1 provides information on which CST examinations were taken in each of the testing years. It is clear that the Preuss and comparison groups took the English and History examinations (World History and U.S. History) during the same years, but that there were pronounced differences in the Mathematics and Science tests taken by the groups. In 2003, 13 of the 24 Preuss students (54%) took the higher level Algebra 2 examination while only one student from the comparison group took that exam. In the same year, all Preuss students took the Physics examination and 20% of comparison students did not take Physics and the associated CST examination.

A pattern of proportionately more Preuss students taking higher level Mathematics and Science courses persists across testing years and subject areas. These differences may have introduced bias into the results reported, specifically, a bias favoring the comparison group. Using the 2003 Physics examination as an example, a reasonable interpretation is that the 20% of the comparison group students who did not take Physics were largely students unprepared to take the course. If true, then the results reported were based on a statistical comparison of test scores from the entire Preuss group (best prepared to least prepared) and scores earned by the 80% of the comparison group students deemed prepared to take physics. This type of comparison,

⁵ Although the CAT-6 was largely constructed with questions from the SAT-9, it is sufficiently different that student performance on the two tests cannot be compared.

based on what may have been a less representative subgroup of comparison group students, was a potential source of bias in favor of the comparison group.

The second issue was small group size. When the number of students (Preuss or comparison) taking a CST examination did not exceed 8-10, it is likely that statistical tests lacked “power” – the ability to detect group differences, if they existed. Below this numeric threshold, the results of statistical analyses are not reported as there was not a reasonable expectation that the tests performed were capable of detecting “true” group differences. Looking again at table 2.1.1, the 2003 sample sizes for the Biology, Algebra 1, and Algebra 2 examinations were so small that the results of those tests could not be reported. Testing in the 2004 and 2005 school years had similar problems with small sample sizes in a variety of subject areas.

Table 2.1.1 - Class of 2006 CST Test-Taking Patterns

TEST	PREUSS (2003)	COMP. (2003)	PREUSS (2004)	COMP. (2004)	PREUSS (2005)	COMP. (2005)
English	24	30	24	31	24	31
World History	0	0	24	31	0	0
U.S. History	0	0	0	0	24	31
Algebra 1	1	10	0	1	0	0
Geometry	10	21	5	10	1	2
Algebra 2	13	1	7	18	5	9
H.S. Math	0	0	12	1	18	16
Biology	0	3	0	3	19	20
Chemistry	0	0	24	28	5	3
Physics	24	25	0	0	0	3
Earth Science	0	0	0	0	0	1

N=24 students total (Preuss); 32 students total (Comparison).

Section 3: Standardized Test Results by Subject Area

This section provides information on all standardized tests taken by the graduating Class of 2006. Tables 3.1.1 – 3.1.6 show the specific test taken, the year the test was taken, the average scaled score earned by both the Preuss and comparison groups (including the number of students in each group), and the p-value associated with the statistical test performed. Observed p-values less than or equal to 0.05 are individually statistically significant at conventional levels. As described in the preceding section, many of the CST tests results could not be analyzed because of small sample sizes; these cells are filled with a dash.

Performance on two examinations, the 10th grade CAT6 Reading and the 2004 CST English language arts (ELA), reached statistical significance. The results for the 2005 CST ELA examination, while not reaching statistical significance, suggested a possible trend, with the Preuss students the higher performing group. There were no other significant results, but a weak difference emerged in favor of Preuss on the 2004 Chemistry examination, with Preuss students scoring 4%-5% higher than the comparison group.

Table 3.1.1 - Class of 2006 Standardized Test Performance, Social Sciences

TEST	PREUSS SCALE SCORE	COMP. SCALE SCORE	P-VALUE
CST World History (2004)	380 (N=24)	369 (N=31)	0.457
CST U.S. History (2005)	403 (N=24)	381 (N=31)	0.093

Table 3.1.2- Class of 2006 Standardized Test Performance, English Language Arts

TEST	PREUSS SCALE SCORE	COMP. SCALE SCORE	P-VALUE
SAT9 Language Arts 6 th (2000)	668 (N=23)	665 (N=31)	0.648
SAT9 Language Arts 7 th (2001)	692 (N=24)	682 (N=31)	0.089
SAT9 Language Arts 8 th (2002)	700 (N=24)	688 (N=31)	0.157
CAT6 Language Arts 9 th (2003)	701 (N=24)	697 (N=32)	0.540
CAT6 Language Arts 10 th (2004)	722 (N=24)	709 (N=31)	0.097
CST English Language Arts 9 th (2003)	384 (N=24)	373 (N=30)	0.274
CST English Language Arts 10 th (2004)	381 (N=24)	363 (N=31)	0.018
CST English Language Arts 11 th (2005)	382 (N=24)	365 (N=31)	0.070

Table 3.1.3 - Class of 2006 Standardized Test Performance, Reading

TEST	PREUSS SCALE SCORE	COMP. SCALE SCORE	P-VALUE
SAT9 Reading 6 th (2000)	679 (N=23)	682 (N=32)	0.687
SAT9 Reading 7 th (2001)	711 (N=24)	699 (N=31)	0.056
SAT9 Reading 8 th (2002)	713 (N=24)	711 (N=31)	0.805
CAT6 Reading 9 th (2003)	709 (N=24)	703 (N=32)	0.310
CAT6 Reading 10 th (2004)	726 (N=24)	712 (N=31)	0.048

Table 3.1.4 - Class of 2006 Standardized Test Performance, Spelling

TEST	PREUSS SCALE SCORE	COMP. SCALE SCORE	P-VALUE
SAT9 Spelling 6 th (2000)	668 (N=23)	679 (N=31)	0.219
SAT9 Spelling 7 th (2001)	685 (N=24)	695 (N=31)	0.175
SAT9 Spelling 8 th (2002)	694 (N=24)	699 (N=31)	0.397

Table 3.1.5 - Class of 2006 Standardized Test Performance, Mathematics

TEST	PREUSS SCALE SCORE	COMP. SCALE SCORE	P-VALUE
SAT9 Mathematics 6 th (2000)	700 (N=23)	687 (N=32)	0.123
SAT9 Mathematics 7 th (2001)	696 (N=24)	699 (N=31)	0.678
SAT9 Mathematics 8 th (2002)	701 (N=24)	700 (N=31)	0.865
CAT6 Mathematics 9 th (2003)	727 (N=24)	723 (N=32)	0.655
CAT6 Mathematics 10 th (2004)	742 (N=24)	738 (N=31)	0.593
CST Algebra 1 (2003)	N/R (N=1)	295 (N=10)	-
CST Geometry (2003)	303 (N=10)	330 (N=21)	0.185
CST Algebra 2 (2003)	310 (N=13)	N/R (N=1)	-
CST Geometry (2004)	321 (N=5)	296 (N=10)	-
CST Algebra 2 (2004)	287 (N=7)	298 (N=18)	0.593
CST H.S. Math (2004)	305 (N=12)	N/R (N=1)	-
CST Algebra 2 (2005)	279 (N=5)	281 (N=9)	-
CST H.S. Math (2005)	308 (N=18)	303 (N=16)	0.790

Table 3.1.6 - Class of 2006 Standardized Test Performance, Natural Sciences

TEST	PREUSS SCALE SCORE	COMP. SCALE SCORE	P-VALUE
SAT9 Science 6 th (2000)	665 (N=23)	657 (N=29)	0.241
SAT9 Science 7 th (2001)	-	-	-
SAT9 Science 8 th (2002)	-	-	-
CAT6 Science 9 th (2003)	710 (N=24)	710 (N=32)	0.998
CAT6 Science 10 th (2004)	724 (N=24)	715 (N=31)	0.169
CST Physics (2003)	316 (N=24)	307 (N=25)	0.250
CST Chemistry (2004)	326 (N=24)	312 (N=28)	0.079
CST Biological Sciences (2005)	357 (N=19)	347 (N=20)	0.336

There was no SAT9 science test given in the 7th or 8th grade.

Section 4: Grade Point Averages

A student's unweighted GPA represents the grades earned for courses taken, without adjustment for course difficulty. Table 4.1.1 provides information on the average high school unweighted GPA for Preuss and Comparison Group students by year, and their average cumulative GPA through the end of the 2005/2006 school year. The Preuss Class of 2006 had statistically higher cumulative unweighted GPA's relative to the control group students. The magnitude of the difference is of practical significance, about a third of a grade point, large enough to impact both college eligibility and choice of college.

Table 4.1.1 Class of 2006 Unweighted GPA by Academic Year

ACADEMIC YEAR	PREUSS UNWEIGHTED GPA	COMP. UNWEIGHTED GPA	P-VALUE
2002-03 (9 th Grade)	3.30	3.04	0.055
2003-04 (10 th Grade)	3.24	2.93	0.048
2004-05 (11 th Grade)	3.36	3.06	0.058
2005-06 (12 th Grade)	3.48	2.91	0.0002
Cumulative	3.34	2.99	0.004

N=24 students (Preuss); 32 students (Comparison).

A student's weighted GPA takes into account the additional grade point earned for each advanced placement (AP), International Baccalaureate (IB), and honors course taken and passed during high school. Table 4.1.2 provides information on the average weighted high school GPA recorded by the Preuss and comparison groups by grade level and cumulative value. Statistically different weighted GPA's, favoring the Preuss students, appeared at all grade levels, as well as in the final cumulative GPA.

Comparing these results to the unweighted GPA's, it is clear that Preuss students took more AP and honors courses than the comparison group students. The difference in AP course taking was dramatic; Preuss students took, on average, 8 years of AP courses and the comparison groups took 2.5 years. This very large difference in AP courses translated into substantial differences in the cumulative weighted GPA. The nearly one-half grade point difference had important practical implications for Preuss students in terms of college eligibility and the choice of which college to attend.

Table 4.1.2 Class of 2006 Weighted GPA by Academic Year

ACADEMIC YEAR	PREUSS WEIGHTED GPA	COMP. WEIGHTED GPA	P-VALUE
2002-03 (9 th Grade)	3.34	3.05	0.031
2003-04 (10 th Grade)	3.48	3.00	0.006
2004-05 (11 th Grade)	3.71	3.32	0.025
2005-06 (12 th Grade)	3.96	3.13	<0.0001
Cumulative	3.62	3.13	0.0005

N=24 students (Preuss); 32 students (Comparison).

Section 5: A-G Completion Rates

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 requirements.” Table 5.1.1 shows each of the subject areas and the minimum and recommended number of years of study required for college eligibility:

Table 5.1.1 A-G Requirements for CSU and UC Admission

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 and Performing Arts	1
“G”	Electives	1
All Requirements	Total Years: 15 required, 18 recommended	

For the Class of 2006 we analyzed courses taken by the Preuss and comparison groups using official transcripts from the Preuss School and administrative datasets supplied by SDUSD. Table 5.2.1 shows the percentage of students in each group completing the A-G requirements⁶ and Table 5.3.1 provides the average number of years of study accumulated by each group in the various subject areas. Although comparison group students came close to completing the required years of study in several subject areas, the “all or none” nature of the A-G requirements drove down the percentage of students graduating with successful completion. Only one Preuss student failed to meet all A-G requirements and 63% percent of the comparison group students met all requirements. The data clearly point to diligence on the part of Preuss personnel, ensuring that they offered, and students took, the appropriate courses to meet the requirements. Because of this diligence, students in the Class of 2006 graduated “eligible” for admission to public 4-year colleges and universities at a much higher rate than students in the matched comparison group.

⁶ The results reported are likely slightly different from those reported by the Preuss School. The differences are small and due to summer school courses taken post-graduation. The datasets available for these analyses included only courses taken through the end of the regular school year in 2005/2006.

Table 5.2.1 Class of 2006 A-G Completion Rates by Requirement

A-G REQUIREMENT	PREUSS % COMPLETE	COMP. % COMPLETE
A – History & Social Sciences	100%	94%
B – English Language Arts	100%	88%
C – Mathematics	100%	88%
D – Natural Sciences	100%	94%
E – Lang. other than English	96%	84%
F – Visual and Performing Arts	100%	84%
G – Elective	100%	100%
All Requirements	96%	63%

N=24 students (Preuss); 32 students (Comparison).

Table 5.3.1 Class of 2006 A-G Courses Taken by Requirement

A-G REQUIREMENT	PREUSS CLASSES	COMP. CLASSES	P-VALUE
A – History & Social Sciences	2.00	1.95	0.245
B – English Language Arts	4.00	3.88	0.134
C – Mathematics	3.83	3.45	0.021
D – Natural Sciences	2.99	2.77	0.019
E – Lang. other than English	3.28	2.64	0.005
F – Visual and Performing Arts	1.00	0.88	0.055
G – Elective	1.00	1.00	1.000
All Requirements	15.32	14.39	0.001

N=24 students (Preuss); 32 students (Comparison).

Section 6: College Entrance Examinations and College Enrollment⁷

Performance of comparison group students on the SAT I and SAT II are not reliably available and were not available for inclusion in this report. As noted in the 2005 version of this report, SDUSD (where over 90% of comparison group students attended high school) does not track these scores at the individual student level. Absent the data for comparison group students, Table 6.1.1 provides the average scores earned, by decile, for the 2006 Preuss graduates compared against the SDUSD, San Diego County, and California statewide averages on the examinations.⁸ This is a weak proxy for the actual scores and percentage of test takers in the comparison group, but it represents the best information available. Two points are worth noting. The first is that the “percent tested” reported by the CDE is computed by dividing the total number of test scores recorded, by the 12th grade enrollment. This tends to inflate the percent of students reported as taking the test because the calculation includes all attempts and does not adjust for students making multiple attempts at the examination. The second point is that the averages reported for the Preuss group were computed using the highest score achieved for each student⁹, regardless of the number of attempts. Information reported by the CDE does not isolate the “best score” achieved by each student. Because of this, we are unable to estimate whether this tends to inflate or deflate the average scores reported by the CDE. If, on average, the higher scoring students made multiple attempts and those scores were as high as or higher than their initial attempt, then the net effect would be inflationary. The reverse would be true if predominantly lower scoring students made multiple attempts, and they did not improve on their initial performance in subsequent attempts.

Because all Preuss students were required to take the SAT I and II, it is not reasonable to compare their average score with that attained by schools where students were allowed to “self-select” whether to take the test or not. The exact percentage varies from school to school, but in general, less than 50% of students take these tests. Those students are likely college bound and in the upper half of their graduating classes in terms of GPA and courses taken. By presenting the average scores of Preuss students by deciles, readers are free to make their own judgment about what proportion of Preuss test takers represent an “apples to apples” comparison to a group of interest.

⁷ We wish to express our gratitude to Rachel Jacob-Almeida for collecting the data used in this section of the report.

⁸ Obtained from the California Department of Education website.

⁹ The Preuss School provided information on the “best scores” and not the scores for each attempt. Because of this we are unable to adjust our calculations to match the methodology used by the CDE.

**Table 6.1.1 Preuss Class of 2006 SAT I and II Scores¹⁰
(Composite Score: Mathematics + English + Writing)**

	ALL	90%	80%	70%	60%	50%	40%	30%	20%	10%
PREUSS (Average Score)	1555	1592	1622	1658	1691	1730	1774	1830	1916	2032
	Percent Tested			Average Score						
SDUSD	51%			1470						
COUNTY	43%			1520						
STATE	41%			1506						

For the Class of 2006, the average score of the top 50% of Preuss test takers was much higher than that recorded by students in the district, county or state. The scores earned on the SAT's are indicators of academic achievement rather than the sole determinants of college acceptance. When combined with GPA and completion of the A-G requirements, these indicators determine both the eligibility and competitive standing of college the applications made by each graduate.

Table 6.2.1 shows the percentage of Preuss graduates in the Class of 2006 submitting a Statement of Intent to Register (SIR) to each segment of higher education.

Table 6.2.1 Preuss Class of 2006 SIR by Higher Education Segment

	NUMBER OF STUDENTS	% OF CLASS
UC	39	45%
CSU	20	23%
Private	9	10%
CCC¹¹	19	22%
Totals	87	100%

¹⁰ Average scores and percent of students taking the SAT 1 for the SDUSD, County, and State were obtained from the CDE website.

¹¹ Students attending California Community Colleges (CCC) were offered dual admission or Guaranteed Transfer in which students enter the UC as juniors after completing 2 years of community college course work. All students from the classes of 2004 and 2005 who enrolled in community colleges accepted these options, while 16% of the class of 2006 did and 6% did not accept these options.