

Validity of the SAT[®] for Predicting Fourth-Year Grades: 2006 SAT Validity Sample

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Executive Summary

The College Board formed a research consortium with four-year colleges and universities to build a national higher education database with the primary goal of validating the SAT, which is used in college admission and consists of three sections: critical reading (SAT-CR), mathematics (SAT-M) and writing (SAT-W). This report builds on a body of evidence that confirms that SAT[®] scores are predictive of multiple indicators of college performance (e.g., first-year grade point average [[Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008](#); [Mattern, Patterson, Shaw, Kobrin, & Barbuti, 2008](#); [Patterson, Mattern, & Kobrin, 2009](#); [Patterson & Mattern, 2011](#)]; retention to the second year [[Mattern & Patterson, 2009](#)]; second-year grades [[Mattern & Patterson, 2011b](#)], retention to the third year [[Mattern & Patterson, 2011a](#)]; and third-year grades [[Mattern & Patterson, 2011c](#)]) by demonstrating a strong link between SAT scores and grades earned through the fourth year of college.

This report presents the validity of the SAT for predicting two fourth-year college outcomes: (1) fourth-year cumulative GPA (4th Yr Cum GPA), and (2) fourth-year grade point average (4th Yr GPA). Grade point average (GPA) for a given year is defined as the average of course grades earned just in that year. Cumulative grade point average (Cum GPA) for a given year is defined as the average of course grades earned at any time from the first year through the year in question. Thus 4th Yr GPA is the average of course grades in just the fourth year, while 4th Yr Cum GPA is the average of course grades in the first through fourth years. Similar to the results for first-, second-, and third-year outcomes, the study found that the SAT is strongly correlated with 4th Yr Cum GPA and 4th Yr GPA for the total sample. The correlations remain strong even when controlling for institutional characteristics (control, selectivity, size) and student characteristics (gender, race/ethnicity, best language, household income, highest parental education). Results are based on nearly 60,000 students across 55 institutions.

Table 1. *Distribution of Institutional Characteristics*

	Characteristic	%
U.S. Region	Midwest	13
	Mid-Atlantic	20
	New England	22
	South	13
	Southwest	9
	West	24
Control	Public	40
	Private	60
Size (Number of Undergraduates)	Small (750 to 1,999)	20
	Medium (2,000 to 7,499)	36
	Large (7,500 to 14,999)	24
	Very Large (15,000 or more)	20
Selectivity	< 50%	20
	50%–75%	55
	> 75%	25

- Of the 110 institutions from the original 2006 sample, 55 provided fourth-year data.
- The 2006 sample of institutions was diverse with regard to control, size, and selectivity (i.e., admittance rate).

Table 2. *Descriptive Statistics on the Total Sample*

Variable	M	SD
HSGPA	3.67	0.47
SAT-CR	573	92
SAT-M	591	93
SAT-W	568	92
1st Yr GPA	3.11	0.58
2nd Yr GPA	3.13	0.61
3rd Yr GPA	3.19	0.62
4th Yr GPA	3.24	0.67
4th Yr Cum GPA	3.19	0.51

Note: $N = 56,939$.

- Of the original 110 institutions, 55 provided fourth-year data. Students who did not have complete data (i.e., HSGPA, SAT scores, 1st Yr GPA, 2nd Yr GPA, 3rd Yr GPA, 4th Yr GPA or 4th Yr Cum GPA) were removed from analyses, resulting in a final sample size of 56,939.
- Similar to the previous findings, this sample of college students outperformed the population of SAT takers who graduated high school in 2006, whose mean SAT-CR, SAT-M, and SAT-W were 503, 518, and 497, respectively (College Board, 2006). These results are not surprising because the sample is made up of college students who have persisted to the fourth year as compared to the population of SAT takers, some of whom never enrolled in college.

Table 3. Corrected (Raw) Correlation Matrix of SAT & HSGPA

Variable	HSGPA	SAT-CR	SAT-M	SAT-W
HSGPA	-	.45	.49	.49
SAT-CR	(.20)	-	.72	.84
SAT-M	(.22)	(.49)	-	.72
SAT-W	(.24)	(.71)	(.49)	-

Note: $N = 56,939$. Pooled within-institution, restriction of range corrected and raw correlations are presented.

- The correlations between all predictors were similar to what was found in previous research.

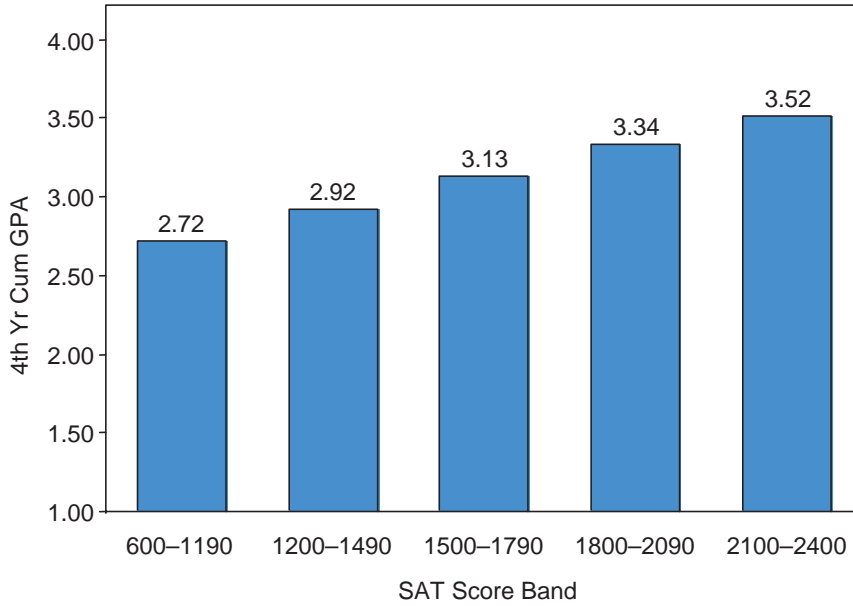
Table 4. Corrected (Raw) Correlations of Predictors with Fourth-Year Grades

Predictor(s)	Correlation	
	4th Yr GPA	4th Yr Cum GPA
1. HSGPA	.43 (.27)	.56 (.36)
2. SAT-CR	.35 (.20)	.51 (.31)
3. SAT-M	.33 (.15)	.48 (.26)
4. SAT-W	.39 (.24)	.54 (.35)
5. SAT-M, SAT-CR	.37 (.21)	.54 (.33)
6. HSGPA, SAT-M, SAT-CR	.46 (.31)	.63 (.44)
7. SAT-CR, SAT-M, SAT-W	.40 (.24)	.56 (.37)
8. HSGPA, SAT-CR, SAT-M, SAT-W	.47 (.32)	.64 (.46)

Note: $N = 56,939$. Pooled within-institution, restriction of range-corrected and raw correlations are presented.

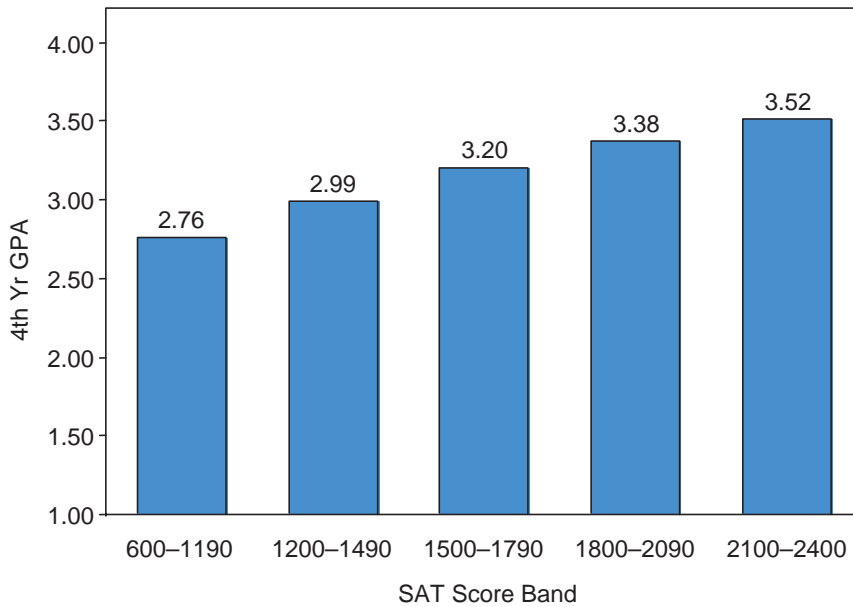
- The results show that the best predictor of 4th Yr GPA and 4th Yr Cum GPA is the combination of high school grades and SAT scores
- The corrected correlations of SAT scores and HSGPA with 4th Yr GPA were lower than the correlations with 1st Yr GPA. This is probably because 1st Yr GPA represents a more standardized measure of college performance in that students take more similar courses in their first year as compared to their fourth year (Camara & Echternacht, 2000). On the other hand, the correlations of SAT scores and HSGPA with 4th Yr Cum GPA were slightly higher than the correlations with 1st Yr GPA. This is probably due to the fact that 4th Yr Cum GPA is a more reliable measure of college performance because more courses are included in the computation of GPA.
- Similar to the results for 1st Yr GPA, the SAT writing section has the highest correlation with 4th Yr GPA and 4th Yr Cum GPA among the three sections.
- When compared to SAT scores used alone, HSGPA alone was slightly more predictive of 4th Yr GPA ($r = .43$ versus $r = .40$), whereas HSGPA and SAT were equally predictive of 4th Yr Cum GPA ($r = .56$).
- SAT scores retain incremental predictive power over HSGPA alone through the fourth year. The incremental validity of SAT scores over HSGPA was .04 and .08 for 4th Yr GPA and 4th Yr Cum GPA, respectively. For comparison, for 1st Yr GPA, the incremental validity of SAT scores over HSGPA alone was also .08.

Figure 1. Mean 4th Yr Cum GPA by SAT score band.



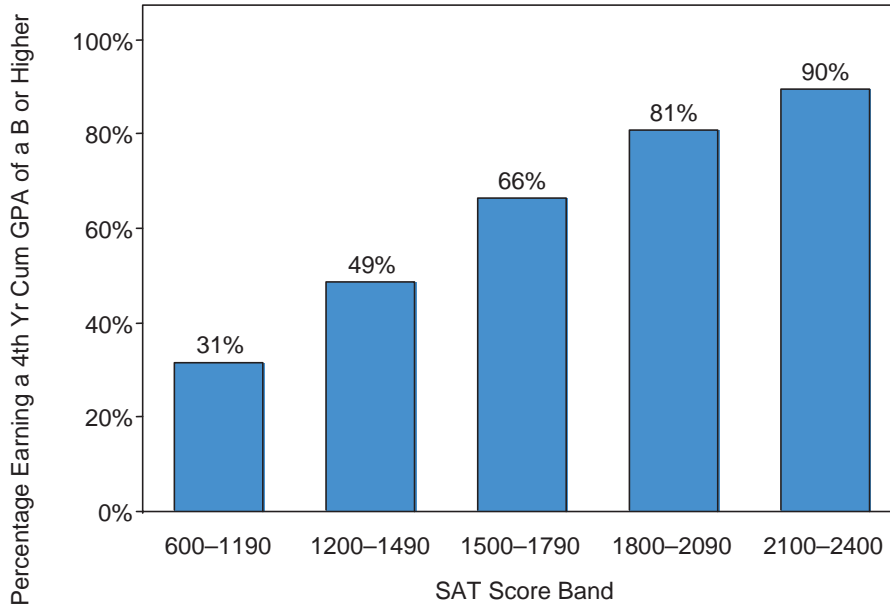
- Figure 1 presents the mean 4th Yr Cum GPA by SAT score band. This graphically demonstrates the strong positive relationship between SAT scores and grades earned over four years of college.
- SAT score bands are based on the sum of SAT-CR, SAT-M, and SAT-W. The sample sizes for the five SAT score bands: 728 for 600-1190; 9,261 for 1200-1490; 23,694 for 1500-1790; 19,311 for 1800-2090; and 3,945 for 2100-2400.

Figure 2. Mean 4th Yr GPA by SAT Score Band



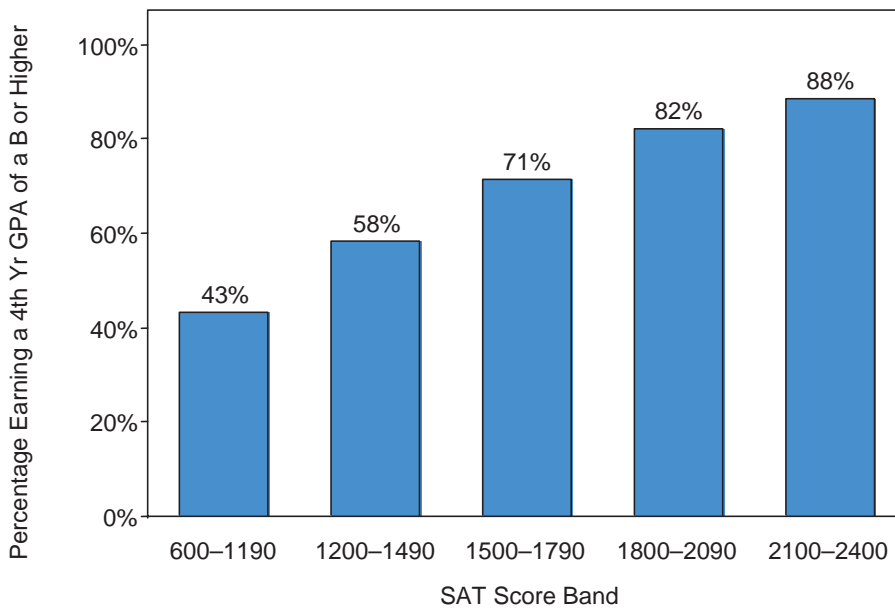
- Figure 2 presents the mean 4th Yr GPA by SAT score band. This graphically demonstrates the strong positive relationship between SAT scores and grades earned in the fourth year of college.
- SAT score bands are based on the sum of SAT-CR, SAT-M, and SAT-W. The sample sizes for the five SAT score bands: 728 for 600-1190; 9,261 for 1200-1490; 23,694 for 1500-1790; 19,311 for 1800-2090; and 3,945 for 2100-2400.

Figure 3. Percent of students earning a 4th Yr Cum GPA of a B or higher by SAT score band



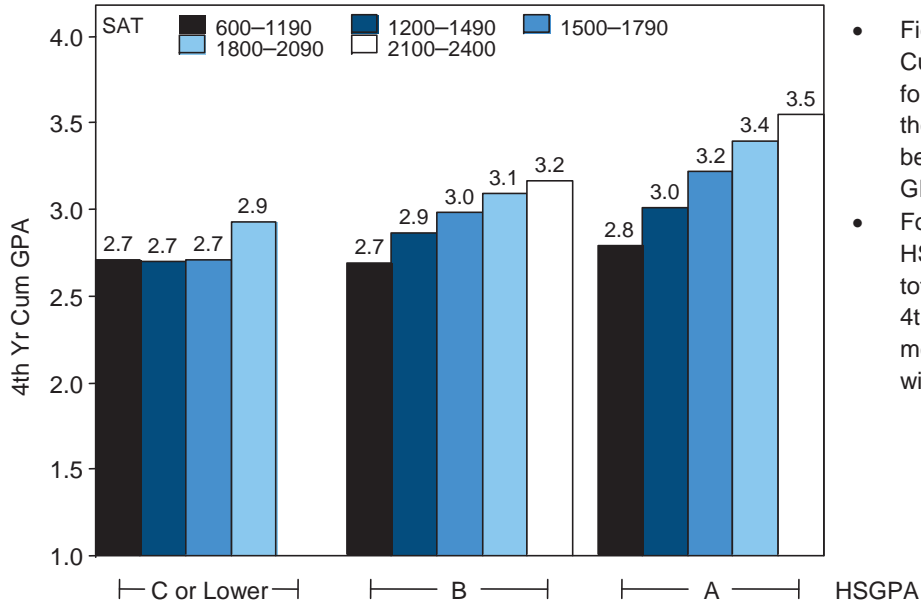
- Figure 3 presents the percentage of students by SAT score band who had a 4th Yr Cum GPA of B (3.0) or higher. Again, the strong positive relationship between SAT scores and grades earned over four years of college is evident.
- SAT score bands based on the sum of SAT-CR, SAT-M, and SAT-W. The sample sizes for the five SAT score bands are: 728 for 600-1190; 9,261 for 1200-1490; 23,694 for 1500-1790; 19,311 for 1800-2090; and 3,945 for 2100-2400.

Figure 4. Percentage of students earning a 4th Yr GPA of a B or higher by SAT score band



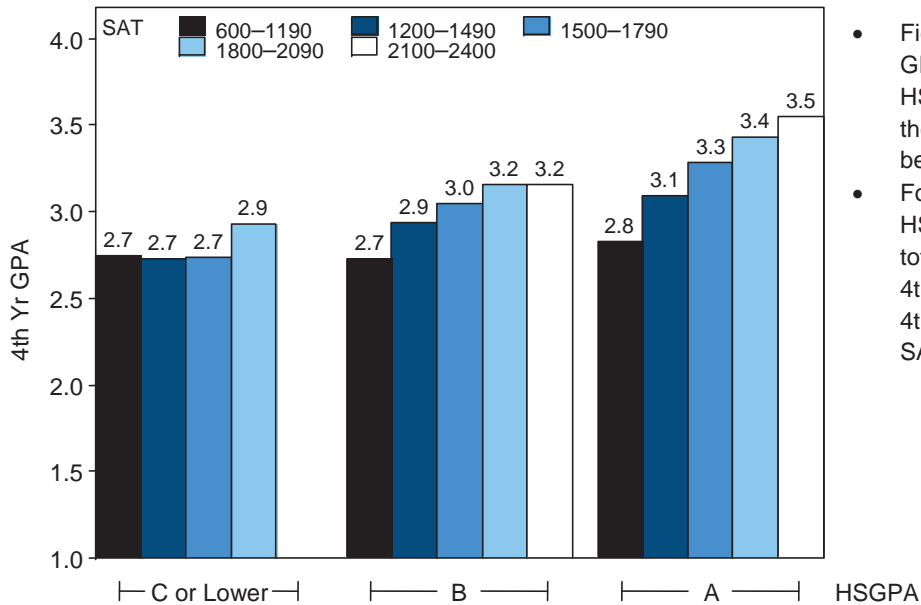
- Figure 4 presents the percentage of students by SAT score band who had a 4th Yr GPA of B (3.0) or higher. Again the strong positive relationship between SAT scores and grades earned in the fourth year of college is evident.
- SAT score bands based on the sum of SAT-CR, SAT-M, and SAT-W. The sample sizes for the five SAT score bands are: 728 for 600-1190; 9,261 for 1200-1490; 23,694 for 1500-1790; 19,311 for 1800-2090; and 3,945 for 2100-2400.

Figure 5. Incremental validity of the SAT: Mean 4th Yr Cum GPA by SAT score band within HSGPA



- Figure 5 presents students' mean 4th Yr Cum GPA by SAT score band, controlling for HSGPA. Even within HSGPA levels, there is a strong positive relationship between SAT scores and 4th Yr Cum GPA.
- For example, of the students with an HSGPA equal to an A, those with an SAT total score from 600 to 1190 had a mean 4th Yr Cum GPA of 2.8, compared to a mean 4th Yr Cum GPA of 3.5 for students with an SAT total score from 2100 to 2400.

Figure 6. Incremental validity of the SAT: Mean 3rd Yr GPA by SAT score band within HSGPA



- Figure 6 presents students' mean 3rd Yr GPA by SAT score band, controlling for HSGPA. Even within HSGPA levels, there is a strong positive relationship between SAT scores and 3rd Yr GPA.
- For example, of the students with a HSGPA equal to an A, those with an SAT total score from 600 to 1190 had a mean 3rd Yr GPA of 2.8, compared to a mean 3rd Yr GPA of 3.5 for students with an SAT total score from 2100 to 2400.

Note: For Figures 5 and 6, SAT score bands are based on the sum of SAT-CR, SAT-M, and SAT-W. HSGPA ranges were defined as follows: "A" range: 4.33 (A+), 4.00 (A), and 3.67 (A-); "B" range: 3.33 (B+), 3.00 (B), and 2.67 (B-); and "C or Lower" range: 2.33 (C+) and lower. Sample sizes are reported below:

HSGPA	SAT				
	600-1190	1200-1490	1500-1790	1800-2090	2100-2400
C or lower	112	403	290	60	6*
B	414	4,897	8,112	3,576	311
A	202	3,961	15,292	15,675	3,628

* Category had fewer than 15 students and was not displayed.

Table 5. Descriptive Statistics of Study Variables by Institutional Characteristics

Institutional Characteristic	k	n	SAT-CR		SAT-M		SAT-W		HSGPA		1st Yr GPA		2nd Yr GPA		3rd Yr GPA		4th Yr GPA		4th Yr Cum GPA		
			Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean
Control																					
Private	33	20,720	597	93	612	92	595	92	3.69	0.46	3.15	0.56	3.20	0.56	3.26	0.57	3.34	0.58	3.25	0.50	
Public	22	36,219	559	89	579	91	552	87	3.67	0.48	3.10	0.58	3.09	0.63	3.15	0.65	3.19	0.70	3.15	0.52	
Size																					
Under 50%	11	9,747	623	89	639	86	625	87	3.76	0.42	3.21	0.58	3.27	0.57	3.31	0.59	3.39	0.59	3.31	0.52	
50 to 75%	30	38,141	569	89	589	90	562	87	3.69	0.46	3.09	0.57	3.10	0.61	3.16	0.63	3.21	0.68	3.16	0.51	
Over 75%	14	9,051	537	87	550	87	529	85	3.51	0.52	3.10	0.59	3.12	0.60	3.18	0.62	3.23	0.68	3.18	0.52	
Selectivity																					
Small	11	2,573	560	97	565	91	558	92	3.55	0.51	2.85	0.77	2.91	0.77	2.98	0.79	3.08	0.81	2.97	0.74	
Medium	20	9,498	584	101	595	100	580	99	3.65	0.49	3.20	0.53	3.23	0.54	3.30	0.55	3.36	0.56	3.29	0.46	
Large	13	18,648	556	90	578	93	549	90	3.58	0.49	3.07	0.57	3.08	0.62	3.13	0.64	3.19	0.68	3.14	0.51	
Very Large	11	26,220	583	88	601	88	577	88	3.77	0.43	3.14	0.56	3.15	0.59	3.21	0.61	3.25	0.66	3.21	0.50	
Total	55	56,939	573	92	591	93	568	92	3.67	0.47	3.11	0.58	3.13	0.61	3.19	0.62	3.24	0.67	3.19	0.51	

Note: k = number of institutions, n = subgroup sample size. Institution sizes were categorized by the number of undergraduates as follows: small = 750 to 1,999; medium = 2,000 to 7,499; large = 7,500 to 14,999; and very large = 15,000 or more.

- Students attending private institutions had higher mean SAT scores, HSGPA, and grades during all four years of college than students attending public institutions.
- Students' mean SAT scores and HSGPA increased as institutional selectivity increased (i.e., admittance rate decreased). Grades earned in college were highest for students at the most selective institutions, whereas grades for students at institutions that admitted 50%–75% were comparable to the grades for students at institutions that admitted over 75%.
- Students attending very large and medium-sized institutions had the highest mean SAT scores, HSGPA, and college grades when compared to large and small institutions, though the differences were small.

Table 6. *Corrected Correlations of SAT and HSGPA with 4th Yr Cum GPA by Institutional Characteristics*

Institutional Characteristic		k	n	SAT-CR	SAT-M	SAT-W	SAT	HSGPA	SAT, HSGPA
Control	Private	33	20,720	.53	.50	.56	.58	.56	.66
	Public	22	36,219	.49	.47	.53	.55	.56	.63
Selectivity	Under 50%	11	9,747	.53	.49	.57	.59	.54	.65
	50 to 75%	30	38,141	.50	.49	.54	.56	.56	.64
	Over 75%	14	9,051	.49	.45	.52	.54	.57	.64
Size	Small	11	2,573	.54	.55	.57	.61	.58	.68
	Medium	20	9,498	.53	.50	.56	.58	.58	.67
	Large	13	18,648	.50	.48	.54	.56	.57	.64
	Very Large	11	26,220	.50	.47	.53	.55	.55	.63
Total		55	56,939	.51	.48	.54	.56	.56	.64

Note: *k* = number of institutions, *n* = subgroup sample size. Pooled within-institution, restriction of range-corrected correlations are presented. Institution sizes were categorized by the number of undergraduates as follows: small = 750 to 1,999; medium = 2,000 to 7,499; large = 7,500 to 14,999; and very large = 15,000 or more. The “SAT” column refers to the inclusion of all three sections in the relevant multiple correlation. For raw correlations, see Appendix B.

- For all institution types, the SAT remains a strong predictor of 4th Yr Cum GPA, with significant incremental predictive power over HSGPA used alone.
- As with grades earned in the first three years of college, the correlation of scores on each SAT section with 4th Yr Cum GPA was generally:
 - slightly higher for private institutions than public institutions;
 - higher for more selective institutions (those admitting fewer than half of their applicants); and
 - higher for smaller institutions than larger institutions.
- The correlation between HSGPA and 4th Yr Cum GPA was:
 - the same for private and public institutions;
 - higher for less selective institutions; and
 - higher for smaller institutions than larger institutions.

Table 7. *Corrected Correlations of SAT and HSGPA with 4th Yr GPA by Institutional Characteristics*

Institutional Characteristic	k	n	SAT-CR	SAT-M	SAT-W	SAT	HSGPA	SAT, HSGPA	
Control	Private	33	20,720	.38	.35	.41	.42	.43	.49
	Public	22	36,219	.34	.32	.38	.38	.42	.47
Selectivity	Under 50%	11	9,747	.40	.36	.43	.44	.42	.49
	50 to 75%	30	38,141	.35	.33	.38	.39	.42	.47
	Over 75%	14	9,051	.34	.31	.37	.38	.45	.48
Size	Small	11	2,573	.41	.42	.44	.46	.48	.54
	Medium	20	9,498	.38	.35	.41	.42	.43	.49
	Large	13	18,648	.35	.32	.38	.39	.43	.47
	Very Large	11	26,220	.35	.32	.38	.39	.42	.46
Total		55	56,939	.35	.33	.39	.40	.43	.47

Note: Refer to the note for Table 6. For raw correlations, see Appendix D.

- As with 4th Yr Cum GPA, for all institution types, the SAT remains a strong predictor of 4th Yr GPA, with significant incremental predictive power over HSGPA used alone.
- Similar to the 4th Yr Cum GPA results, the correlation of scores on each SAT section with 4th Yr GPA was generally:
 - slightly higher for private institutions than public institutions;
 - higher for more selective institutions (those admitting fewer than half of their applicants); and
 - higher for smaller institutions than larger institutions.
- The correlation between HSGPA and 4th Yr GPA was:
 - slightly higher at private institutions than public institutions;
 - higher for less selective institutions; and
 - higher for smaller institutions than larger institutions.

Table 8. Descriptive Statistics of Study Variables by Student Characteristics

Student Characteristic	n	SAT-CR		SAT-M		SAT-W		HSGPA		1st Yr GPA		2nd Yr GPA		3rd Yr GPA		4th Yr GPA		4th Yr Cum GPA		
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Gender																				
Male	25,730	576	92	614	91	563	92	3.62	0.49	3.04	0.59	3.03	0.64	3.08	0.66	3.12	0.70	3.09	0.54	
Female	31,209	570	93	573	90	571	91	3.72	0.45	3.17	0.55	3.21	0.57	3.28	0.58	3.34	0.62	3.27	0.48	
Race/ Ethnicity																				
African American	3,277	517	87	516	85	510	85	3.51	0.53	2.79	0.59	2.79	0.63	2.83	0.67	2.89	0.73	2.86	0.51	
American Indian	263	554	89	568	93	541	91	3.57	0.51	2.97	0.56	2.94	0.65	2.98	0.69	3.04	0.76	3.02	0.53	
Asian	5,832	572	101	629	95	572	99	3.72	0.44	3.12	0.60	3.12	0.62	3.17	0.62	3.20	0.65	3.17	0.52	
Hispanic	3,514	542	89	554	92	538	87	3.70	0.47	2.94	0.60	2.91	0.66	2.97	0.70	3.01	0.78	2.99	0.55	
Other	1,691	569	93	583	93	567	95	3.64	0.48	3.07	0.59	3.08	0.63	3.16	0.64	3.21	0.67	3.15	0.53	
White	39,785	579	89	595	89	573	88	3.68	0.47	3.16	0.56	3.18	0.58	3.24	0.60	3.30	0.63	3.24	0.49	
Not Stated	2,577	598	98	600	93	588	98	3.68	0.48	3.16	0.58	3.18	0.59	3.22	0.60	3.27	0.68	3.23	0.51	
Best Language																				
English Only	53,102	576	91	592	92	569	90	3.67	0.47	3.12	0.57	3.14	0.60	3.20	0.62	3.25	0.66	3.20	0.51	
English and Another	2,741	545	99	583	105	550	101	3.68	0.47	3.02	0.60	3.01	0.64	3.07	0.67	3.10	0.70	3.08	0.54	
Another Language	548	477	97	613	106	495	101	3.71	0.46	3.15	0.59	3.10	0.63	3.12	0.64	3.21	0.61	3.17	0.50	
Not Stated	548	560	103	575	108	553	103	3.61	0.51	3.04	0.60	3.05	0.62	3.12	0.61	3.19	0.67	3.12	0.53	
Household Income																				
< \$30,000	3,820	529	96	550	98	522	94	3.67	0.49	2.98	0.59	2.97	0.64	3.01	0.67	3.05	0.74	3.03	0.53	
\$30,000–50,000	5,013	552	93	568	92	543	90	3.68	0.48	3.06	0.59	3.05	0.64	3.10	0.66	3.15	0.72	3.12	0.53	
\$50,000–70,000	5,960	561	89	576	88	553	88	3.69	0.48	3.09	0.58	3.09	0.62	3.15	0.64	3.21	0.69	3.16	0.52	
\$70,000–100,000	9,683	570	90	586	91	563	89	3.69	0.47	3.12	0.57	3.13	0.60	3.19	0.62	3.25	0.66	3.20	0.51	
> \$100,000	13,879	590	87	610	88	586	87	3.67	0.47	3.15	0.57	3.18	0.59	3.24	0.60	3.30	0.62	3.23	0.50	
No Response	18,584	581	93	599	92	577	92	3.67	0.47	3.14	0.57	3.16	0.60	3.22	0.61	3.27	0.65	3.21	0.51	
Highest Parental Educ. Level																				
No High School Diploma	879	499	95	540	100	497	92	3.62	0.51	2.95	0.59	2.88	0.67	2.93	0.71	3.00	0.74	2.98	0.54	
High School Diploma	10,053	535	88	554	90	528	86	3.64	0.49	3.00	0.58	3.00	0.64	3.06	0.65	3.11	0.73	3.07	0.52	
Associate Degree	3,350	543	86	561	88	535	86	3.64	0.50	3.04	0.58	3.05	0.62	3.11	0.65	3.17	0.69	3.11	0.52	
Bachelor's Degree	19,235	573	88	592	89	567	87	3.68	0.47	3.12	0.57	3.14	0.59	3.20	0.61	3.25	0.66	3.20	0.50	
Graduate Degree	20,665	600	89	616	89	596	88	3.70	0.46	3.18	0.57	3.20	0.59	3.27	0.60	3.32	0.62	3.26	0.50	
No Response	2,757	570	99	598	99	568	98	3.65	0.47	3.11	0.58	3.14	0.59	3.19	0.61	3.23	0.67	3.19	0.51	
Total	56,939	573	92	591	93	568	92	3.67	0.47	3.11	0.58	3.13	0.61	3.19	0.62	3.24	0.67	3.19	0.51	

Note: n = subgroup sample size.

- Similar to previous findings, males had higher SAT-CR and SAT-M scores, whereas females had higher SAT-W scores, HSGPA, and college grades.
- Asian and white students outperformed other ethnic subgroups on all academic indicators except for HSGPA, where Hispanic students had higher grades than white students.
- Students whose best spoken language was English had the highest mean SAT-CR score, SAT-W score, and earned the highest grades years two through four of college. Students whose best spoken language was not English had the highest mean HSGPA, SAT-M score, and 1st Yr GPA.
- As household income and highest parental education level increased, so did mean performance on all academic indicators.

Table 9. Corrected Correlation of SAT Scores and HSGPA with 4th Yr Cum GPA by Student Characteristics

Student Characteristic		<i>k</i>	<i>n</i>	SAT-CR	SAT-M	SAT-W	SAT	HSGPA	SAT, HSGPA
Gender	Male	53	25,730	.48	.48	.51	.54	.54	.62
	Female	55	31,209	.55	.55	.57	.61	.56	.67
Race/ Ethnicity	African American	35	3,135	.44	.41	.47	.49	.48	.55
	American Indian	3	52	.53	.43	.68	.68	.46	.70
	Asian	38	5,711	.42	.43	.45	.48	.47	.54
	Hispanic	37	3,394	.44	.42	.48	.49	.46	.55
	Other	30	1,481	.49	.44	.52	.53	.48	.59
	White	55	39,785	.50	.46	.53	.55	.58	.65
	Not Stated	45	2,503	.47	.43	.52	.53	.52	.60
Best Language	English Only	55	53,102	.51	.48	.55	.57	.57	.65
	English & Another	36	2,605	.42	.44	.46	.48	.41	.52
	Another Language	10	337	.25	.26	.28	.29	.29	.33
	Not Stated	13	297	.39	.36	.42	.43	.49	.53
Parental Income	< \$30,000	46	3,723	.45	.46	.47	.51	.45	.55
	\$30,000–50,000	50	4,959	.49	.46	.53	.54	.54	.62
	\$50,000–70,000	52	5,926	.47	.46	.51	.53	.56	.62
	\$70,000–100,000	53	9,663	.50	.47	.53	.55	.57	.64
	> \$100,000	53	13,861	.51	.48	.54	.56	.60	.67
	Not Stated	55	18,584	.51	.48	.54	.56	.55	.64
Highest Parental Ed. Level	No HS Diploma	18	691	.37	.42	.40	.44	.47	.52
	HS Diploma	53	10,031	.47	.45	.50	.52	.51	.59
	Associate Degree	42	3,241	.48	.45	.51	.52	.55	.62
	Bachelor's Degree	55	19,235	.50	.47	.53	.55	.57	.65
	Graduate Degree	53	20,639	.51	.49	.54	.56	.58	.66
Not Stated	43	2,661	.51	.48	.54	.56	.50	.61	
Total		55	56,939	.51	.48	.54	.56	.56	.64

Note: *k* = number of institutions, *n* = subgroup sample size. Pooled within-institution, restriction of range-corrected correlations are presented. The “SAT” column refers to the inclusion of all three sections in the relevant multiple correlation. For raw correlations, see Appendix C.

- This table shows that across student demographic categories, the SAT remains a strong predictor of 4th Yr Cum GPA, with significant incremental predictive power over HSGPA alone.
- Both HSGPA and SAT scores were more predictive of 4th Yr Cum GPA for females than males, for white students than other racial/ethnic subgroups (with the exception of American Indian students; however, the sample size for that group was extremely small and should be interpreted with caution), for students whose best language was English than other best language subgroups, and for students from families with higher household income and parental education level.
- Similar to previous findings, the multiple correlation of SAT scores with 4th Yr Cum GPA was higher than the HSGPA-4th Yr Cum GPA correlation for all racial/ethnic subgroups except for white students.

Table 10. Corrected Correlation of SAT Scores and HSGPA with 4th Yr GPA by Student Characteristics

Student Characteristic		<i>k</i>	<i>n</i>	SAT-CR	SAT-M	SAT-W	SAT	HSGPA	SAT, HSGPA
Gender	Male	53	25,730	.35	.34	.38	.39	.41	.46
	Female	55	31,209	.39	.39	.41	.43	.42	.49
Race/ Ethnicity	African American	35	3,135	.29	.26	.32	.33	.35	.39
	American Indian	3	52	.27	.15	.38	.43	.06	.44
	Asian	38	5,711	.29	.28	.32	.33	.33	.38
	Hispanic	37	3,394	.29	.26	.31	.32	.33	.37
	Other	30	1,481	.37	.31	.40	.41	.37	.45
	White	55	39,785	.33	.30	.36	.37	.44	.47
	Not Stated	45	2,503	.31	.28	.36	.36	.36	.42
Best Language	English Only	55	53,102	.36	.33	.39	.40	.43	.48
	English & Another	36	2,605	.29	.30	.32	.34	.29	.36
	Another Language	10	337	.16	.14	.18	.18	.18	.21
	Not Stated	13	297	.23	.19	.24	.25	.34	.35
Parental Income	< \$30,000	46	3,723	.31	.32	.32	.35	.33	.39
	\$30,000–50,000	50	4,959	.31	.28	.36	.36	.39	.43
	\$50,000–70,000	52	5,926	.33	.30	.36	.36	.42	.46
	\$70,000–100,000	53	9,663	.34	.31	.37	.38	.44	.47
	> \$100,000	53	13,861	.36	.33	.39	.40	.47	.50
	Not Stated	55	18,584	.35	.33	.39	.40	.42	.47
Highest Parental Ed. Level	No HS Diploma	18	691	.26	.29	.29	.31	.34	.37
	HS Diploma	53	10,031	.30	.29	.34	.35	.37	.41
	Associate Degree	42	3,241	.31	.29	.34	.35	.43	.46
	Bachelor's Degree	55	19,235	.34	.31	.37	.38	.43	.47
	Graduate Degree	53	20,639	.36	.33	.39	.40	.45	.49
Not Stated	43	2,661	.38	.34	.40	.41	.37	.45	
Total		55	56,939	.35	.33	.39	.40	.43	.47

Note: *k* = number of institutions, *n* = subgroup sample size. Pooled within-institution, restriction of range-corrected correlations are presented. The “SAT” column refers to the inclusion of all three sections in the relevant multiple correlation. For raw correlations, see Appendix E.

- Similar to previous findings and the 4th Yr Cum GPA results above, the SAT remains a strong predictor of 4th Yr GPA, with significant incremental predictive power over HSGPA alone. We also observe that both HSGPA and SAT scores were more predictive of 4th Yr GPA for females than males, for white students than other known racial/ethnic subgroups (with the exception of SAT-W for American Indian students; however, this is based on very small sample sizes and should be interpreted with caution), for students whose best language was English than other best language subgroups, and for students from higher-SES families (as measured by parental income and highest parental education level).

Table 11. Average Over- (-) and Underprediction (+) of 4th Yr Cum GPA for SAT Scores and HSGPA

Student Characteristic		<i>k</i>	<i>n</i>	SAT-CR	SAT-M	SAT-W	SAT	HSGPA	SAT, HSGPA
Gender	Male	53	25,730	-0.095	-0.121	-0.080	-0.095	-0.067	-0.072
	Female	55	31,209	0.078	0.099	0.066	0.078	0.055	0.059
Race/ Ethnicity	African American	52	3,277	-0.221	-0.210	-0.205	-0.175	-0.250	-0.156
	American Indian	47	263	-0.137	-0.141	-0.120	-0.120	-0.130	-0.108
	Asian	54	5,832	0.012	-0.043	0.005	-0.005	-0.004	-0.003
	Hispanic	55	3,514	-0.105	-0.102	-0.092	-0.074	-0.165	-0.081
	Other	54	1,691	-0.020	-0.017	-0.023	-0.017	-0.018	-0.009
	White	55	39,785	0.028	0.033	0.026	0.023	0.036	0.021
	Not Stated	55	2,577	-0.006	0.022	<0.001	-0.004	0.029	0.002
Best Language	English Only	55	53,102	0.001	0.005	0.001	0.001	0.006	0.001
	English & Another	55	2,741	-0.046	-0.082	-0.054	-0.043	-0.100	-0.043
	Another Language	49	548	0.169	-0.035	0.153	0.147	-0.018	0.125
	Not Stated	53	548	-0.029	-0.028	-0.023	-0.018	-0.037	-0.016
Parental Income	< \$30,000	55	3,820	-0.067	-0.081	-0.053	-0.040	-0.140	-0.061
	\$30,000–50,000	55	5,013	-0.031	-0.030	-0.021	-0.016	-0.068	-0.035
	\$50,000–70,000	55	5,960	-0.009	-0.006	-0.004	-0.004	-0.032	-0.021
	\$70,000–100,000	55	9,683	0.013	0.018	0.014	0.013	0.007	0.004
	> \$100,000	55	13,879	0.010	0.008	0.004	0.001	0.040	0.017
	Not Stated	55	18,584	0.011	0.011	0.007	0.006	0.024	0.013
Highest Parental Education Level	No HS Diploma	52	879	-0.059	-0.108	-0.044	-0.026	-0.169	-0.037
	HS Diploma	55	10,053	-0.046	-0.054	-0.039	-0.031	-0.095	-0.049
	Associate Degree	55	3,350	-0.019	-0.023	-0.013	-0.010	-0.057	-0.030
	Bachelor's Degree	55	19,235	0.008	0.008	0.008	0.007	0.011	0.008
	Graduate Degree	55	20,665	0.019	0.028	0.015	0.010	0.052	0.021
Not Stated	55	2,757	0.012	-0.004	0.007	0.007	0.007	0.011	
Total		55	56,939	0.000	0.000	0.000	0.000	0.000	0.000

Note: *k* = number of institutions, *n* = subgroup sample size. Negative values indicate overprediction; positive values indicate underprediction. 4th Yr Cum GPA prediction equations were estimated for each institution separately. Individual residuals were computed by subtracting predicted raw 4th Yr Cum GPA from actual raw 4th Yr Cum GPA. The “SAT” column refers to all three sections being entered as separate predictors.

- Similar to previous differential prediction findings, SAT scores, and to a lesser extent HSGPA, overpredicted 4th Yr Cum GPA for males and underpredicted it for females.
- SAT scores, and to a greater extent HSGPA, overpredicted 4th Yr Cum GPA for African American, American Indian, and Hispanic students.
- Relative to HSGPA, SAT scores resulted in less prediction error for students whose best language was English and another language but more prediction error for students whose best language was another language.
- SAT scores, and to a greater extent HSGPA, overpredicted 4th Yr Cum GPA for students from lower-SES families (i.e., parental income ≤ \$50,000; parental education ≤ associate degree).

Table 12. Average Over- (-) and Underprediction (+) of 4th Yr GPA for SAT Scores and HSGPA

Student Characteristic		<i>k</i>	<i>n</i>	SAT-CR	SAT-M	SAT-W	SAT	HSGPA	SAT, HSGPA
Gender	Male	53	25,730	-0.121	-0.140	-0.108	-0.115	-0.095	-0.092
	Female	55	31,209	0.099	0.115	0.089	0.095	0.078	0.076
Race/ Ethnicity	African American	52	3,277	-0.255	-0.254	-0.236	-0.221	-0.271	-0.202
	American Indian	47	263	-0.168	-0.170	-0.150	-0.151	-0.158	-0.141
	Asian	54	5,832	-0.008	-0.050	-0.013	-0.017	-0.021	-0.015
	Hispanic	55	3,514	-0.130	-0.133	-0.115	-0.107	-0.177	-0.114
	Other	54	1,691	-0.022	-0.020	-0.024	-0.021	-0.018	-0.013
	White	55	39,785	0.037	0.042	0.035	0.033	0.042	0.031
	Not Stated	55	2,577	-0.020	0.002	-0.017	-0.019	0.007	-0.014
Best Language	English Only	55	53,102	0.003	0.006	0.003	0.003	0.007	0.003
	English & Another	55	2,741	-0.081	-0.112	-0.084	-0.077	-0.122	-0.077
	Another Language	49	548	0.128	-0.040	0.122	0.124	-0.026	0.103
	Not Stated	53	548	-0.022	-0.022	-0.014	-0.013	-0.026	-0.012
Parental Income	< \$30,000	55	3,820	-0.107	-0.122	-0.092	-0.085	-0.167	-0.104
	\$30,000–50,000	55	5,013	-0.050	-0.051	-0.039	-0.037	-0.082	-0.055
	\$50,000–70,000	55	5,960	-0.007	-0.006	-0.003	-0.003	-0.028	-0.019
	\$70,000–100,000	55	9,683	0.019	0.023	0.019	0.018	0.013	0.010
	> \$100,000	55	13,879	0.019	0.020	0.014	0.012	0.046	0.028
	Not Stated	55	18,584	0.013	0.014	0.010	0.010	0.024	0.016
Highest Parental Education Level	No HS Diploma	52	879	-0.093	-0.139	-0.074	-0.064	-0.181	-0.075
	HS Diploma	55	10,053	-0.059	-0.068	-0.051	-0.047	-0.100	-0.065
	Associate Degree	55	3,350	-0.024	-0.028	-0.017	-0.016	-0.056	-0.035
	Bachelor's Degree	55	19,235	0.011	0.011	0.011	0.010	0.013	0.011
	Graduate Degree	55	20,665	0.027	0.036	0.022	0.020	0.055	0.031
Not Stated	55	2,757	-0.007	-0.019	-0.010	-0.010	-0.010	-0.006	
Total		55	56,939	0.000	0.000	0.000	0.000	0.000	0.000

Note: *k* = number of institutions, *n* = subgroup sample size. Negative values indicate overprediction; positive values indicate underprediction. 4th Yr GPA prediction equations were estimated for each institution separately. Individual residuals were computed by subtracting predicted raw 4th Yr GPA from actual raw 4th Yr GPA. The “SAT” refers to all three sections being entered as separate predictors.

- Similar to previous differential prediction findings, SAT scores, and to a lesser extent HSGPA, overpredicted 4th Yr GPA for males and underpredicted 4th Yr GPA for females.
- SAT scores, and to a greater extent HSGPA, overpredicted 4th Yr GPA for African American, American Indian, and Hispanic students.
- Relative to HSGPA, SAT scores resulted in less prediction error for students whose best language was English and another language, but more prediction error for students whose best language was another language.
- SAT scores, and to a greater extent HSGPA, overpredicted 4th Yr GPA for students from lower-SES families (i.e., parental income ≤ \$50,000; parental education ≤ associate degree).

Appendix A

Institutions Providing Fourth-Year Outcomes Data for the 2006 Cohort

Institution Name	
Albany College of Pharmacy and Health Sciences	University of Cincinnati
Austin College	University of Denver
Baldwin-Wallace College	University of Georgia
Boston College	University of Massachusetts, Dartmouth
Boston University	University of New Haven
Brandeis University	University of North Texas
Chapman University	University of Oregon
Claremont McKenna College	University of Pittsburgh
Clemson University	University of Portland
Coastal Carolina University	University of Puget Sound
Drew University	University of Rhode Island
Eastern Connecticut State University	University of Southern California
Fordham University	University of Southern Indiana
Georgia Institute of Technology	University of Texas at Austin
Kenyon College	University of the Pacific
Lafayette College	Valdosta State University
Lasell College	Vanderbilt University
Lycoming College	Washington State University, Pullman
Meredith College	Washington State University, Vancouver
Northern Arizona University	Western Washington University
Saint Anselm College	Wheaton College
Saint Michael's College	Wilkes University
Schreiner University	Williams College
Smith College	Anonymous A
Syracuse University	Anonymous B
Temple University	Anonymous C
Texas State University, San Marcos	Anonymous D
The Ohio State University	

Appendix B

Raw Correlations of SAT and HSGPA with 4th Yr Cum GPA by Institutional Characteristics

Institutional Characteristic	<i>k</i>	<i>n</i>	SAT-CR	SAT-M	SAT-W	SAT	HSGPA	SAT, HSGPA	
Control	Private	33	20,720	.34	.27	.38	.40	.38	.49
	Public	22	36,219	.29	.25	.34	.35	.35	.45
Selectivity	Under 50%	11	9,747	.36	.27	.40	.41	.36	.48
	50 to 75%	30	38,141	.29	.24	.33	.35	.35	.45
	Over 75%	14	9,051	.35	.29	.38	.40	.45	.52
Size	Small	11	2,573	.34	.33	.38	.42	.42	.52
	Medium	20	9,498	.34	.26	.37	.40	.40	.49
	Large	13	18,648	.30	.24	.35	.36	.38	.47
	Very large	11	26,220	.31	.26	.35	.36	.34	.45
Total		55	56,939	.31	.26	.35	.37	.36	.46

Note: *k* = number of institutions, *n* = subgroup sample size. Pooled within-institution, uncorrected correlations are presented. Institution sizes are categorized by the number of undergraduates as follows: small = 750 to 1,999; medium = 2,000 to 7,499; large = 7,500 to 14,999; and very large = 15,000 or more.

Appendix C

Raw Correlation of SAT Scores and HSGPA with 4th Yr Cum GPA by Student Characteristics

Student Characteristic		<i>k</i>	<i>n</i>	SAT-CR	SAT-M	SAT-W	SAT	HSGPA	SAT, HSGPA
Gender	Male	53	25,730	.28	.27	.32	.35	.35	.44
	Female	55	31,209	.36	.34	.37	.42	.35	.48
Race/ Ethnicity	African American	35	3,135	.24	.19	.29	.30	.31	.40
	American Indian	3	52	.37	.21	.52	.52	.30	.55
	Asian	38	5,711	.24	.23	.28	.30	.26	.36
	Hispanic	37	3,394	.26	.21	.30	.31	.26	.37
	Other	30	1,481	.32	.24	.35	.37	.31	.43
	White	55	39,785	.29	.21	.33	.34	.38	.46
	Not Stated	45	2,503	.29	.22	.37	.38	.34	.46
Best Language	English Only	55	53,102	.31	.25	.35	.37	.37	.47
	English & Another	36	2,605	.27	.28	.31	.34	.22	.38
	Another Language	10	337	.12	.13	.16	.18	.16	.22
	Not Stated	13	297	.27	.22	.34	.34	.33	.42
Parental Income	< \$30,000	46	3,723	.27	.29	.31	.35	.28	.40
	\$30,000–50,000	50	4,959	.32	.26	.38	.39	.36	.47
	\$50,000–70,000	52	5,926	.29	.24	.33	.35	.38	.45
	\$70,000–100,000	53	9,663	.30	.24	.34	.36	.37	.46
	> \$100,000	53	13,861	.29	.21	.32	.34	.40	.47
	Not Stated	55	18,584	.31	.25	.36	.37	.36	.46
Highest Parental Ed. Level	No HS Diploma	18	691	.16	.26	.22	.28	.29	.37
	HS Diploma	53	10,031	.28	.25	.32	.34	.34	.43
	Associate Degree	42	3,241	.30	.25	.34	.36	.39	.47
	Bachelor's Degree	55	19,235	.30	.23	.34	.36	.38	.46
	Graduate Degree	53	20,639	.29	.23	.34	.36	.38	.46
	Not Stated	43	2,661	.34	.28	.38	.40	.30	.45
Total		55	56,939	.31	.26	.35	.37	.36	.46

Note: *k* = number of institutions, *n* = subgroup sample size. Pooled within-institution, uncorrected correlations are presented.

Appendix D

Raw Correlations of SAT and HSGPA with 4th Yr GPA by Institutional Characteristics

Institutional Characteristic	<i>k</i>	<i>n</i>	SAT-CR	SAT-M	SAT-W	SAT	HSGPA	SAT, HSGPA	
Control	Private	33	20,720	.22	.16	.26	.27	.28	.34
	Public	22	36,219	.18	.14	.23	.23	.26	.32
Selectivity	Under 50%	11	9,747	.25	.17	.28	.29	.26	.34
	50 to 75%	30	38,141	.18	.14	.22	.23	.25	.31
	Over 75%	14	9,051	.22	.18	.26	.27	.34	.38
Size	Small	11	2,573	.23	.23	.27	.30	.33	.39
	Medium	20	9,498	.22	.16	.26	.26	.28	.34
	Large	13	18,648	.19	.14	.23	.24	.28	.33
	Very large	11	26,220	.19	.15	.23	.24	.25	.31
Total		55	56,939	.20	.15	.24	.24	.27	.32

Note: *k* = number of institutions, *n* = subgroup sample size. Pooled within-institution, uncorrected correlations are presented. Institution sizes are categorized by the number of undergraduates as follows: small = 750 to 1,999; medium = 2,000 to 7,499; large = 7,500 to 14,999; and very large = 15,000 or more.

Appendix E

Raw Correlation of SAT Scores and HSGPA with 4th Yr GPA by Student Characteristics

Student Characteristic		<i>k</i>	<i>n</i>	SAT-CR	SAT-M	SAT-W	SAT	HSGPA	SAT, HSGPA
Gender	Male	53	25,730	.19	.17	.22	.23	.26	.31
	Female	55	31,209	.22	.22	.24	.27	.25	.32
Race/ Ethnicity	African American	35	3,135	.14	.10	.19	.19	.24	.28
	American Indian	3	52	.15	.04	.27	.29	.04	.29
	Asian	38	5,711	.15	.13	.19	.20	.19	.25
	Hispanic	37	3,394	.16	.11	.18	.19	.18	.24
	Other	30	1,481	.23	.14	.27	.27	.23	.33
	White	55	39,785	.17	.11	.21	.21	.28	.32
	Not Stated	45	2,503	.17	.13	.25	.25	.23	.31
Best Language	English Only	55	53,102	.20	.15	.24	.24	.27	.33
	English & Another	36	2,605	.17	.19	.21	.23	.16	.26
	Another Language	10	337	.09	.05	.11	.11	.10	.13
	Not Stated	13	297	.16	.08	.19	.20	.22	.28
Parental Income	< \$30,000	46	3,723	.18	.19	.20	.23	.19	.27
	\$30,000–50,000	50	4,959	.19	.14	.24	.25	.26	.32
	\$50,000–70,000	52	5,926	.19	.14	.22	.23	.28	.32
	\$70,000–100,000	53	9,663	.18	.13	.22	.22	.28	.32
	> \$100,000	53	13,861	.18	.12	.22	.22	.30	.34
	Not Stated	55	18,584	.19	.15	.24	.24	.26	.32
Highest Parental Ed. Level	No HS Diploma	18	691	.09	.15	.13	.17	.20	.24
	HS Diploma	53	10,031	.17	.15	.21	.21	.25	.29
	Associate Degree	42	3,241	.18	.14	.22	.22	.31	.34
	Bachelor's Degree	55	19,235	.18	.12	.23	.23	.28	.32
	Graduate Degree	53	20,639	.19	.13	.23	.23	.28	.33
Not Stated	43	2,661	.24	.18	.27	.28	.22	.32	
Total		55	56,939	.20	.15	.24	.24	.27	.32

Note: *k* = number of institutions, *n* = subgroup sample size. Pooled within-institution, uncorrected correlations are presented.

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