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# Validity of SAT<sup>®</sup> Essay Scores for Predicting First-Year Grades

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## Abstract

This paper presents the results of a national validity study examining relationships between new SAT Essay scores and first semester grades in English and writing courses, as well as first-year grade point average (FYGPA) in college. The sample includes more than 180,000 first-year students across 171 four-year institutions. Results show that there is a positive relationship between the three SAT Essay scores and first semester English and writing course grades as well as overall FYGPA. More importantly, these SAT Essay scores add useful information above and beyond the SAT Evidence-Based Reading and Writing (ERW) section score. Findings show that the added predictive value of the SAT Essay can be even more powerful by student subgroup. For some student subgroups, the SAT Essay can improve our ability to predict their college performance in English and Writing by more than 30% above using the combination of HSGPA and SAT ERW scores. These findings provide compelling empirical support for institutions using or considering the use of SAT Essay scores for admission, placement, or advising on campus.

# Introduction

## The Importance of the SAT Essay

College professors, administrators, admission officers, and other higher education leaders expect students to arrive at college ready and able to write, as it is among the most critical skills for college success (Beyer, Gillmore, & Fisher, 2007; Conley, 2007; Sparks, Song, Brantley, & Liu, 2014). Regardless of college major, most students will enroll in an introductory writing course, resulting in an estimated 2 million students participating in these courses each year (Wilder & Yagaleski, 2018). Knowing when writing is a weakness for a student and when additional instruction or support is needed is essential for advancing students on the path to success in college (Kuh, 2006). Colleges and universities need valid and reliable data regarding students' writing performance in order to make informed decisions about appropriate course placement and possible support services required.

High school English and writing experiences vary widely, and high school grades are not always the best measure of a student's writing ability (Conley, 2007). High school grades understandably can lack consistency with regard to scales and standards across high schools and teachers, reflect different types of assignments with varying levels of rigor, and can include subjective information about the student unrelated to the content area being evaluated (Shaw, 2018). The SAT<sup>®</sup> Essay, which was implemented in March 2016, was developed in consultation with higher education faculty, in part, to fill the need to thoughtfully and fairly measure and understand student writing performance in an authentic, consistent, and nuanced way. It reflects college expectations of students by requiring them to analyze a text, formulate logical arguments, and appropriately use evidence in their writing (College Board, in preparation).

Essay testing and multiple-choice formats both provide key insights into a student's readiness for college writing. Essay testing, more so than multiple-choice formats, allows for a greater focus on global aspects of writing (Matzen & Hoyt, 2004; Shaw & Kobrin, 2012). Essay tests are often considered the most authentic format for assessing writing as they require students to actually write and engage with extended text (Sparks et al., 2014). Essay tests also measure skills (e.g., analysis of persuasive techniques) that are not as easily measured in multiple-choice formats and do not have the same conceptual organization of being either "correct" or "incorrect" the way multiple-choice questions do (Stiggins, 1982). Benefits of multiple-choice formats include higher score reliability as they are based on many different test questions, which typically results in higher correlations with college outcomes (College Board, 2017; Shaw & Kobrin, 2012).

There are also advantages to having students share a writing sample produced in real time, independent of the work or input of others, and subject to test security measures for admission purposes. This is in contrast to other written materials for the college application such as essays or information on awards, honors, or activities, which can be difficult to verify for authenticity and independent authorship (Laird, 2005; Stockman & Mureithi, 2019). The SAT Essay provides a way to evaluate all students' writing skills and readiness in a fair and standardized way within an assessment that focuses on the type of analytic writing that students will be doing in college.

## Getting to Know the SAT Essay

The SAT Essay is closely aligned with the analytical writing required of students in college. It assesses whether students can comprehend an appropriately challenging source text and prepare a written analysis that uses critical reasoning skills and evidence from the source text. It is different from other standardized direct-writing assessments that ask students to write a persuasive essay based on their opinion.

The SAT Essay was developed to have a common prompt associated with a source text that varies from one test form to another. This has significant advantages for students compared to how most essay tests are administered. In order to prepare for the test, students must focus on developing important reading, analysis, and writing knowledge and skills instead of trying to guess what question will be asked on test day. Students can get right to work instead of spending valuable time trying to form an opinion on a topic they might not have spent much time thinking about. You can find the prompt below:

*As you read the passage below, consider how [the author] uses evidence, such as facts or examples, to support claims.*

- *evidence, such as facts or examples, to support claims.*
- *reasoning to develop ideas and to connect claims and evidence.*
- *stylistic or persuasive elements, such as word choice or appeals to emotion, to add power to the ideas expressed.*

*Write an essay in which you explain how [the author] builds an argument to persuade [his/her] audience that [author's claim]. In your essay, analyze how [the author] uses one or more of the features listed above (or features of your own choice) to strengthen the logic and persuasiveness of [his/her] argument. Be sure that your analysis focuses on the most relevant features of the passage. Your essay should not explain whether you agree with [the author's] claims, but rather explain how the author builds an argument to persuade [his/her] audience.*

The SAT Essay source texts are passages that present arguments that examine ideas, debates, and trends in the arts, sciences, and civic, cultural, and political life (College Board, 2017). All source passages are taken from high-quality sources that have previously been published. The level of complexity of each passage is appropriate for high school students and is approximately 650–750 words in length. The text undergoes various expert reviews before test publication. The SAT Essay is an optional component of the test and is administered at the end of the SAT. Test takers have 50 minutes to complete the essay. Refer to Appendix A for an example of the SAT Essay prompt and source text.

SAT Essay scores are reported on three dimensions: Reading, Analysis, and Writing. Each dimension is reported on a scale of 2–8. To perform well on the Reading dimension, a test taker must show effective comprehension of the source text, an understanding of the central idea(s) and important details and

must appropriately use evidence to demonstrate his or her understanding. To perform well on the Analysis dimension, a test taker must decide which features of the source text are most relevant to the persuasiveness of the text and then develop an effective explanation of how those features help the author build his or her argument. Finally, to perform well on the Writing dimension, a test taker's response must be cohesive and demonstrate effective use and control of language.

Two independent, trained raters give a rating of 1–4 on each dimension, and these scores are combined to get the total score for each dimension. If an essay receives discrepant scores on any dimension where scores differ by more than one score point between the two raters, that essay is automatically routed to adjudication where the discrepant score is resolved by a third rater. During this process, the third rater does not see the other two scores nor know he/she is rescored a response. Only the score on the discrepant dimension(s) is retained during this process. The adjudicated score(s) is doubled and reported out on the 2-8 scale. The majority of essay raters are current teachers or have previously taught high school or college-level courses that require writing, and all must have a bachelor's degree or higher. As the essay is optional, the scores are reported separately from other SAT scores and are not included in the computation of the SAT total score or the SAT Evidence-Based Reading and Writing score.

Common uses of the SAT Essay scores include admission decisions, placing students in courses, and advising students about course selection and need for academic support and supplementary resources. To collect validity evidence supporting the use of SAT Essay scores in admission, placement, or advising, a critical first step is to understand the score relationships with relevant college outcomes, including the overall first-year GPA, the first semester English and Writing coursework GPA, and the grade in the first-semester Writing course. This study represents an initial examination and our related understanding of these relationships.

## Methodology

### Sample

College Board broadly recruited four-year institutions with at least 250 first-year students (at least 75 of those students had to have current SAT (March 2016 or later) scores) to participate in the National SAT Validity Study. Participating institutions provided data through College Board's secure online Admitted Class Evaluation Service™ (ACES™) system. Ultimately, 171 institutions provided the complete student-level information needed for the analyses that follow in this section of the report.

Inclusion in the study sample required students to have current SAT scores including Essay scores, a valid self-reported HSGPA, and a valid FYGPA supplied by the institution. This resulted in a sample size of 183,460 students. See Table 1 for a comparison of the student sample in this study to the corresponding 2017 population of students. Compared to the population, the study sample, which included students who were enrolled in four-year institutions, had a slightly higher proportion of female students, white students, English-only speaking students, and students whose highest parental education level was a bachelor's degree or higher. The study sample had a lower proportion of black or African American students and English and another language students than the overall SAT-taking population with Essay

scores. The institutions in the sample are diverse with regard to region of the U.S., control (public/private), selectivity, and size. Compared to the reference population of four-year institutions for this study, this sample has more public institutions, more selective institutions, and more “large” and “very large” institutions than the population. For a more in-depth comparison of the institutional sample to the population, see Westrick, Marini, Young, Ng, Shmueli, & Shaw (2019).

**Table 1: Comparison of the 2017 SAT Essay Validity Study Sample and 2017 Graduating Seniors with SAT Scores Including the Essay**

		<b>FYGPA Sample (n=183,460)</b>	<b>2017 High School Graduates (N=1,202,640)</b>
Gender	Male	78,063 (43%)	551,022 (46%)
	Female	105,397 (57%)	651,618 (54%)
Race/Ethnicity	American Indian or Alaska Native	494 (<1%)	5,391 (<1%)
	Asian	23,337 (13%)	12,8237 (11%)
	Black or African American	11,934 (7%)	132,279 (11%)
	Hispanic or Latino	42,000 (23%)	301,728 (25%)
	Native Hawaiian or Other Pacific Islander	269 (<1%)	2,842 (<1%)
	White	95,767 (52%)	529,134 (44%)
	Two or More Races	7,148 (4%)	41,053 (3%)
	Not Stated	2,511 (1%)	61,976 (5%)
Best Language	English Only	147,713 (81%)	872,371 (73%)
	English and Another	31,798 (17%)	251,824 (21%)
	Another Language	3,102 (2%)	37,960 (3%)
	Not Stated	847 (<1%)	40,485 (3%)
Highest Parental Education Level	No High School Diploma	11,660 (6%)	101,846 (8%)
	High School Diploma	39,110 (21%)	325,019 (27%)
	Associate Degree	12,240 (7%)	89,432 (7%)
	Bachelor's Degree	65,153 (36%)	338,000 (28%)
	Graduate Degree	52,839 (29%)	253,881 (21%)
	Not Stated	2,458 (1%)	94,462 (8%)

## Measures

**High School GPA (HSGPA).** Students’ self-reported HSGPA was obtained from the SAT Questionnaire when they registered for the SAT and is reported on a 12-point interval scale, ranging from 0.00 (F) to 4.33 (A+). Note that the inclusion of self-reported HSGPA is consistent with previous admission test validity studies (e.g., Mattern & Patterson, 2014; Sawyer, 2013) and studies have found self-reported HSGPA to be highly correlated with actual HSGPA (Kuncel, Credé, & Thomas, 2005; Shaw & Mattern, 2009). The HSGPA measure in this study had a sample mean of 3.69 (SD=0.46) for the overall sample.

**SAT Scores.** SAT scores were obtained from College Board’s database and matched to each student provided in the institution files. The SAT scores included in this study with overall sample descriptive statistics are:

**SAT Evidence-Based Reading and Writing (ERW) Section Score (200 to 800 scale)**—increments of 10, sample mean of 601 (SD=82).

**SAT Essay Reading Score (2 to 8 scale)**—increments of 1, sample mean of 5 (SD=1.1).

**SAT Essay Analysis Score (2 to 8 scale)** —increments of 1, sample mean of 5 (SD=1.4).

**SAT Essay Writing Score (2 to 8 scale)** —increments of 1, sample mean of 5 (SD=1.1).

**SAT Essay Sum score (6 to 24 scale)** —increments of 1, sample mean of 15 (SD=3.3). Note that this is not a College Board-reported score, but a score created for this study by summing the SAT Essay Reading, Analysis, and Writing scores.

**First-year GPA (FYGPA).** Each institution provided FYGPA values for their 2017 first-time, first-year students. The FYGPAs across the 171 institutions in this sample ranged from 0.00 to 4.30. FYGPA had an overall sample mean of 3.06 (SD=0.78).

**English and Writing GPA (EWGPA).** Each institution provided coursework information for their 2017 first-time, first-year students. Coursework was then coded by trained educational research professionals in order to categorize the academic content area of each course. The first semester English and Writing GPA (EWGPA) was calculated for each student across all relevant numeric course grades received in English and writing courses during the first semester of college (excluding remedial coursework). Only coursework with valid numeric grades were included in the EWGPA. Valid nonnumeric grades such as Pass (P), Incomplete (I), or Withdraw (W) were excluded. For example, if a student took only one English course in the first semester, then his or her average course grade in English and Writing would be based on the grade earned in that course. If two English courses and one Writing course were taken, then the average course grade would be based on the average of those three course grades earned (taking into account the grades earned and the number of credits associated with each grade). In this sample ( $n=73,491$ ) the mean EWGPA is 3.24 (SD=0.92).

**First Semester Writing Course Grade (FSWCG).** Using the coded coursework data, a student’s first semester writing course grade (FSWCG) was flagged for analysis. Only non-remedial coursework with valid numeric grades were included in the FSWCG. Valid nonnumeric grades such as P, I, or W were excluded. If a student took more than one writing course during the first semester, this grade represents the average of those course grades. Having more than one first semester writing course was rare (less than 10% of students had more than one course). In this sample ( $n=55,869$ ) the mean FSWCG is 3.18 (SD=0.95).

**SAT Questionnaire Responses.** Self-reported gender, race/ethnicity, best language, and highest parental education level were obtained from the SAT Questionnaire that each student completed during registration for the SAT.

### Descriptive Statistics

All students ( $n=183,460$ ) in this study needed to have a FYGPA. Of those 183,460 students, 73,491 had an EWGPA (EWGPA sample) and 55,869 had a FSWCG (FSWCG sample). All students in the FSWCG sample are also included in the EWGPA sample. Table 2 includes descriptive statistics for all measures of interest for these three samples of students. SAT ERW section and SAT Math section scores vary by the overall sample and two subsamples, but all SAT Essay scores remain relatively stable. The overall FYGPA sample has slightly stronger performance on all measures than the other samples. This may be related to the inclusion of more students in the FYGPA sample who scored high enough on the AP English exams (already mastering college-level work) and placed out of first semester English and/or Writing coursework, as compared to the other two samples.<sup>1</sup> Descriptive statistics of these measures of interest for student subgroups can be found in Table B 1 in Appendix B and for institutional subgroups in Table C 1 in Appendix C.

**Table 2: Descriptive Statistics for the Study Samples**

	FYGPA Sample <i>n</i> =183,460		EWGPA Sample <i>n</i> =73,491		FSWCG Sample <i>n</i> =55,869	
	M	SD	M	SD	M	SD
SAT ERW	601	82	586	81	576	79
SAT Essay Reading	5	1.1	5	1.1	5	1.1
SAT Essay Analysis	5	1.4	4	1.4	4	1.4
SAT Essay Writing	5	1.1	5	1.1	5	1.1
SAT Essay Sum	15	3.3	15	3.3	15	3.2
HSGPA	3.69	0.46	3.61	0.48	3.58	0.48
FYGPA	3.06	0.78	3.03	0.77	2.97	0.79
EWGPA			3.24	0.92		
FSWCG					3.18	0.95

Note: Descriptive statistics for EWGPA and FSWCG are only displayed for their respective analysis samples.

### Analyses

The focus of this study is to examine the use of SAT Essay scores for use in college admission, placement, and advising, and thereby gather the appropriate validity evidence for the use of these scores in such contexts. The analyses range from descriptive and graphical in nature to correlational and predictive in

<sup>1</sup> In the FYGPA sample, 20% of students scored a 3 or higher on the English Literature AP exam and 28% scored a 3 or higher on the English Language AP exam, whereas the percentages were lower in the EWGPA sample (14% and 20% respectively) and even lower in the FSWCG sample (11% and 16% respectively).

nature. Mean correlations were calculated using institution-level correlations weighted by the number of students at the institutions included in the selected analyses. The weights were summed and then divided by the total number of students included in the institutional analyses. Similarly, probabilities of success were calculated at each institution using logistic regression, and parameter estimates were weighted by the number of students included in the analyses at each institution. The weights were summed and then divided by the total number of students included in the institutional analyses.

The correlation analyses explore the relationship of the three SAT Essay scores (Reading, Analysis, and Writing) with FYGPA, EWGPA, and FSWCG alone and above the SAT ERW section and HSGPA. These correlations are also examined by student and institutional subgroups. The average college performance analyses investigate the value of SAT Essay scores within SAT ERW section score quintiles as they relate to performance on the different college outcomes. The probability analyses explore students' chances of EWGPA and FSWCG success given their combined SAT ERW section scores and their SAT Essay scores. Results for the overall sample are presented in the main body of the study. Analyses and results by student subgroups of interest (gender, race/ethnicity, best language, and highest parental education level) and institutional subgroups of interest (control, admittance rate, and size) are shown in the appendices.

## Results

### Correlational Analyses

Table 3 shows correlations between the SAT Essay scores with each outcome analyzed in this study. The adjusted bivariate correlations of the SAT Essay scores with FYGPA ranged from .39 (SAT Essay Reading) to .42 (SAT Essay Writing). The adjusted bivariate correlations of the different essay scores with EWGPA ranged from .30 (SAT Essay Reading) to .32 (SAT Essay Writing). The adjusted bivariate correlations of the different essay scores with FSWCG ranged from .29 (SAT Essay Reading) to .32 (SAT Essay Writing).

**Across all outcomes analyzed, as SAT Essay scores increased, so did performance on the college outcome of interest.** Of the three SAT Essay scores, the Writing score tended to be the strongest predictor across the three outcomes examined in this study, though the combination of the three SAT Essay scores is an even stronger predictor. It is important to note that FYGPA is a more reliable outcome than EWGPA and FSWCG. This is because FYGPA is made up of all the courses a student took during the year whereas EWGPA and FSWCG consist of only a subset of courses taken in the first semester, and sometimes only one course. Therefore, one would expect to see lower correlations when the outcome is EWGPA or FSWCG than FYGPA, especially if the GPA is based only on one grade.

Table 3: Correlations between SAT Essay Scores and Each Outcome

Predictor	Correlation with FYGPA	Correlation with EWGPA	Correlation with FSWCG
SAT Essay Reading	.39 (.21)	.30 (.16)	.29 (.16)
SAT Essay Analysis	.41 (.22)	.31 (.17)	.31 (.16)
SAT Essay Writing	.42 (.22)	.32 (.18)	.32 (.18)
SAT Essay (Reading, Analysis, Writing)	.45 (.25)	.35 (.20)	.35 (.20)

Note: Sample size for correlations with FYGPA is 183,460, with EWGPA is 73,491, and with FSWCG is 55,869. "SAT Essay" refers to the multiple correlation of all three SAT Essay scores together.

Table 4 shows the bivariate and multiple correlations between the other predictors of interest for this study (SAT ERW and HSGPA) and SAT Essay scores. This table is useful in determining the incremental validity of the SAT Essay score(s) above SAT ERW and SAT ERW along with HSGPA to predict the study outcomes. The three SAT Essay scores added a .01 increase in incremental validity above SAT ERW and HSGPA to predict FYGPA. The three SAT Essay scores added a .02 increase in incremental validity above SAT ERW and HSGPA to predict both EWGPA and FSWCG. Additional correlational analyses by student and institutional characteristics are presented in Appendices B and C, respectively. The incremental validity of the SAT Essay scores above HSGPA and SAT ERW scores to predict the different college outcomes by student subgroups was often higher than what was found in the overall sample analyses. For example, for the EWGPA analyses broken out by students' best language, the incremental validity of the SAT Essay scores beyond HSGPA and SAT ERW section scores was .02 for students' whose best language is English only, but it was .03 for students whose best language was English and another language and .11 for students whose best language was another language (Table B 3). **This indicates that for students whose best language is another language, SAT Essay scores added a 31% predictive boost above HSGPA and SAT ERW scores to predict EWGPA.**

Similarly, for the EWGPA analyses broken out by students' racial/ethnic identity, the incremental validity of the SAT Essay scores was .02 for white students, but it was .03 for Hispanic or Latino students, .05 for Asian students, .07 for black or African American students, and .09 for students of two or more races. **In other words, for black or African American students, findings show that SAT Essay scores added a 16% predictive boost above HSGPA and SAT ERW scores to predict EWGPA. Even for highest parental education level, the amount of incremental validity of the SAT Essay scores was somewhat higher than in the overall results. Similar results were found in the FSWCG analyses.**

The analyses conducted by institutional subgroups largely parallel the overall results. In all but four instances, the incremental validity of SAT Essay scores beyond that of HSGPA and SAT ERW scores to predict college outcomes was .02. The greatest incremental validity was .03 for EWGPA at institutions that admitted more than 75% of applicants and .03 for FSWCG at small institutions. For EWGPA at institutions that admitted between 51% and 75% of applicants, and for FSWCG at very large institutions, the incremental validity of the SAT Essay scores was .01.

Table 4: Correlations between Other Study Predictors and Each Outcome

Predictor	Correlation with FYGPA	Correlation with EWGPA	Correlation with FSWCG
SAT-ERW	.51 (.29)	.35 (.18)	.35 (.18)
HSGPA	.54 (.32)	.40 (.24)	.40 (.25)
SAT-ERW, HSGPA	.61 (.40)	.45 (.29)	.45 (.29)
SAT Essay, SAT-ERW	.53 (.33)	.39 (.24)	.39 (.24)
SAT Essay, SAT-ERW, HSGPA	.62 (.42)	.47 (.32)	.47 (.32)

Note: Sample size for correlations with FYGPA is 183,460, with EWGPA is 73,491, and with FSWCG is 55,869. "SAT Essay" refers to the multiple correlation of all three SAT Essay scores together.

## Average College Performance Analyses

### First-Year GPA (FYGPA)

Figure 1 shows the average FYGPA earned by students at each SAT Essay Reading, Analysis, and Writing score point. **This figure shows a positive relationship between each SAT Essay score and FYGPA.** On average, students earn higher FYGPAs across all score points on the SAT Essay Analysis score compared to Reading and Writing scores. Students tend to have very similar mean FYGPAs with SAT Essay Reading and Writing scores in the mid- to high range, though we see slightly more differentiation in FYGPA for those scoring a 2 through 4, with minimally higher FYGPAs for Reading versus Writing scores. As an example from the graph, a student earning an SAT Essay Writing score of 3 has an average FYGPA of 2.53; a student earning an SAT Essay Reading score of 3 has an average FYGPA of 2.59; and a student earning an SAT Essay Analysis score of 3 has an average FYGPA of 2.80. When you compare these scores at a score point of 7, you see that the average FYGPA for a student earning an SAT Reading score of 7 is 3.35 almost identical to the average FYGPA of 3.36 that a student with an SAT Writing score of 7 earns, and a student with an SAT Essay Analysis score of 7 has an average FYGPA of 3.41. From an institutional perspective, this likely means that there may be greater academic concern for students enrolling with very low SAT Essay Reading and Writing scores than with very low SAT Essay Analysis scores.

Figure 1: Mean FYGPA by Essay Score

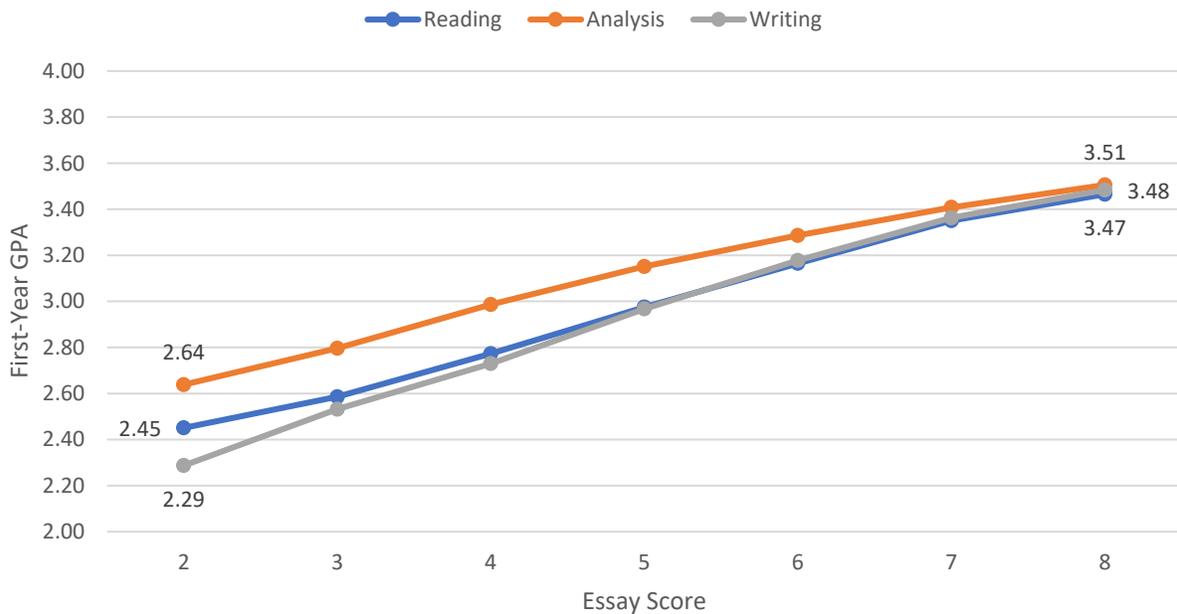
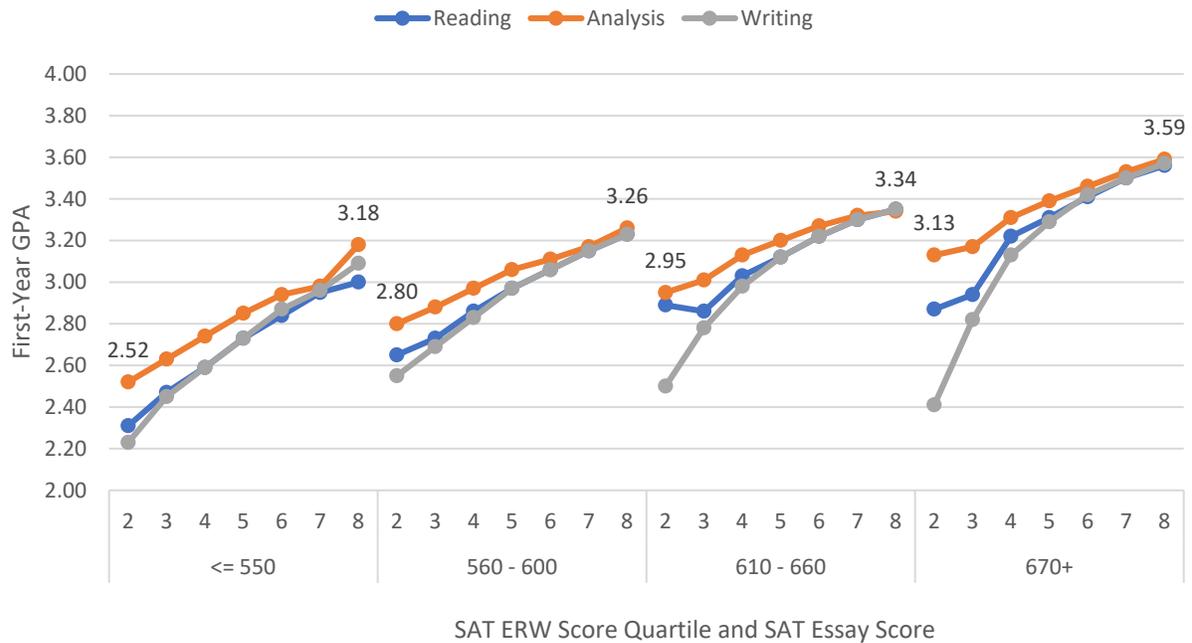


Figure 2 depicts the validity of the SAT Essay scores for predicting FYGPA after controlling for SAT ERW section score. **From this figure, it is evident that across all SAT ERW section score quartiles, the relationship between SAT Essay scores with FYGPA remains clear and positive. All students within an SAT ERW section quartile share very similar SAT ERW section scores, yet the additional information gleaned from each SAT Essay score provides unique and supplementary insight regarding student performance in the first year of college.** As an example from the graph, for all students with an SAT ERW score between 610 and 660, those with an SAT Essay Writing score of 3, have an average FYGPA of 2.78 while those with an SAT Essay Writing score of 7 have an average FYGPA of 3.30. Across all SAT ERW quartiles it appears that students with the highest SAT Essay scores (7 and 8) perform quite similarly in college, however below a score of 7, greater distinction in student performance is made demonstrating the utility of the SAT Essay for identifying those students who might need more academic support in writing. In other words, the SAT Essay provides useful and unique information above SAT ERW scores to aid in our understanding of how students will perform in the first year of college.

Also, Figure 1 and Figure 2 both show that SAT Essay Writing score has the steepest line of the three SAT Essay scores with average FYGPA, across the three SAT Essay scores. This illustrates that the SAT Essay Writing score has the strongest relationship with FYGPA, even when controlling for SAT ERW section performance. This is also echoed in the correlations in Table 3 and especially true at the lower end of the SAT Essay score scale.

Figure 2: Mean FYGPA by ERW Section Quartile and SAT Essay Score



### English & Writing GPA (EWGPA)

Figure 3 shows the average EWGPA earned by students at each SAT Essay score (Reading, Analysis, Writing) and score point. **This figure shows a positive relationship between each SAT Essay score and EWGPA.** On average, students earn higher EWGPAs across all score points on the SAT Essay Analysis score compared to Reading and Writing scores. As seen in the FYGPA analyses, students tend to have very similar mean EWGPAs with SAT Essay Reading and Writing scores in the mid- to high-range, though we see slightly more differentiation in EWGPA for those scoring a 2 through 4, with minimally higher EWGPAs for Reading versus Writing scores. Based on the graph below, a student earning an SAT Essay Writing score of 3 has an average EWGPA of 2.77; a student earning an SAT Essay Reading score of 3 has an average EWGPA of 2.81; and a student earning an SAT Essay Analysis score of 3 has an average EWGPA of 3.03. When compared to a score point of 7, you see that the average EWGPA for a student earning an SAT Reading score of 7 is 3.53 almost identical to the average EWGPA of 3.54 that a student with an SAT Essay Writing score of 7 earns, and a student with an SAT Essay Analysis score of 7 has an average EWGPA of 3.59. It's interesting to note that the EWGPA is higher than the FYGPA at every score point (comparing Figure 3 to Figure 1), which is consistent with previous research on higher grading practices in the English and Writing domains in college (Marini et al., 2018).

Figure 3: Mean EWGPA by Essay Score

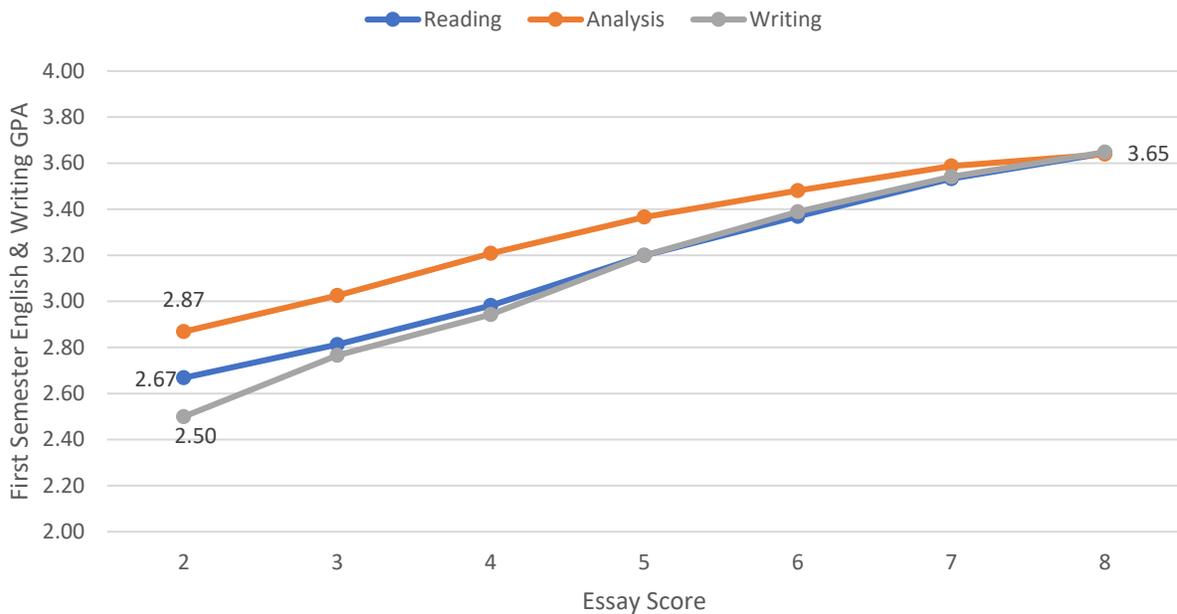
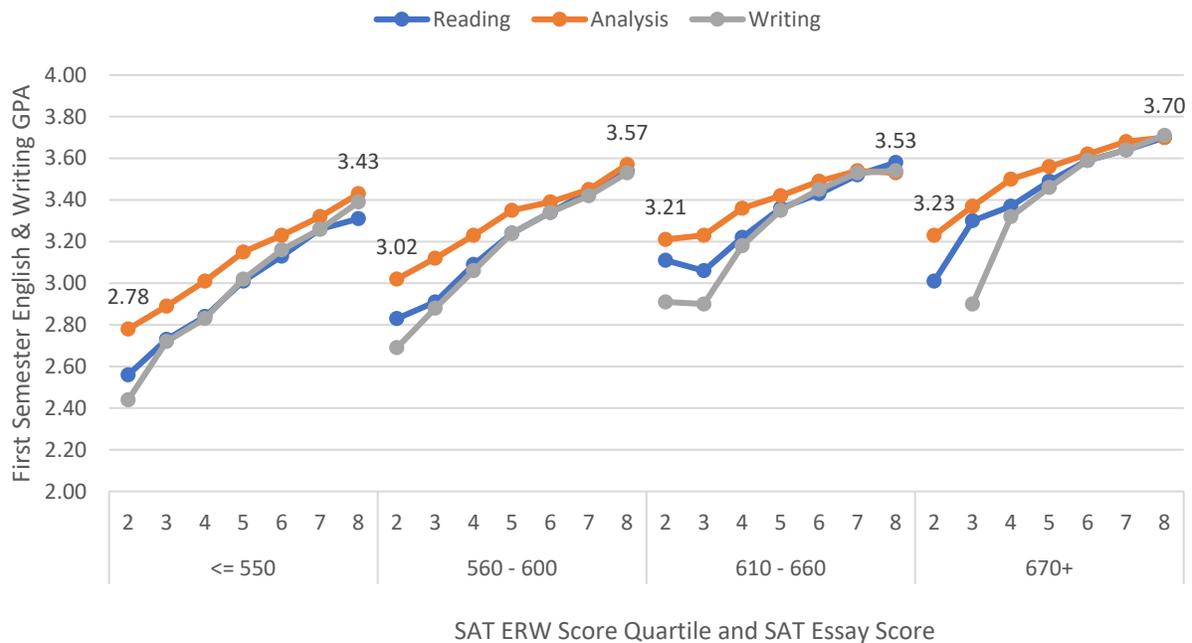


Figure 4 depicts the validity of the SAT Essay scores for predicting EWGPA after controlling for SAT ERW section score. The same trends from Figure 2 can be seen here—it is evident that across all SAT ERW section score quartile graphs, that the relationship between SAT Essay scores with EWGPA remains clear and positive. All students within an SAT ERW section quartile share very similar SAT ERW section scores, yet the additional information gleaned from each SAT Essay score provides unique and supplementary insight regarding student performance in first semester English and Writing coursework. As an example from the graph, for all students with an SAT ERW score between 610 and 660, those with an SAT Essay Writing score of 3, have an average EWGPA of 2.90 while those with an SAT Essay Writing score of 7 have an average EWGPA of 3.53. Across most SAT ERW quartiles it appears that students with the highest SAT Essay scores (7 and 8) perform quite similarly in college; however, below a score of 7, there is greater differentiation in student EWGPA demonstrating the utility of the SAT Essay for identifying those students who might need more academic support in writing.

As we saw with FYGPA, Figure 3 and Figure 4 both show that SAT Writing has the steepest line of the three SAT Essay scores with average EWGPA. This illustrates that the SAT Essay Writing score has the strongest relationship with EWGPA, even when controlling for SAT ERW section performance, which is especially true at the lower end of the SAT Essay score scale.

Figure 4: Mean EWGPA by ERW Section Quartile and SAT Essay Score



### First Semester Writing Course Grade (FSWCG)

Figure 5 shows the average FSWCG earned by students at each SAT Essay Reading, Analysis, and Writing score point. **This figure shows a positive relationship between each SAT Essay score and FSWCG.** On average, students earn higher FSWCGs across all score points on the SAT Essay Analysis score compared to Reading and Writing scores. Students tend to have very similar mean FSWCGs with SAT Essay Reading and Writing scores in the mid- to high range, though we see slightly more differentiation in FSWCG for those scoring a 2 through 4, with minimally higher FSWCGs for Reading versus Writing scores. As an example from the graph, a student earning an SAT Essay Writing score of 3 has an average FSWCG of 2.77; a student earning an SAT Essay Reading score of 3 has an average FSWCG of 2.81; and a student earning an SAT Essay Analysis score of 3 has an average FSWCG of 3.03. When you compare these to a score point of 7, you see that the average FSWCG for a student earning an SAT Reading score of 7 is 3.53, which is almost identical to the average FSWCG of 3.54 for an SAT Writing score of 7, and a student with an SAT Essay Analysis score of 7 has an average FSWCG of 3.59.

Figure 5: Mean FSWCG by Essay Score

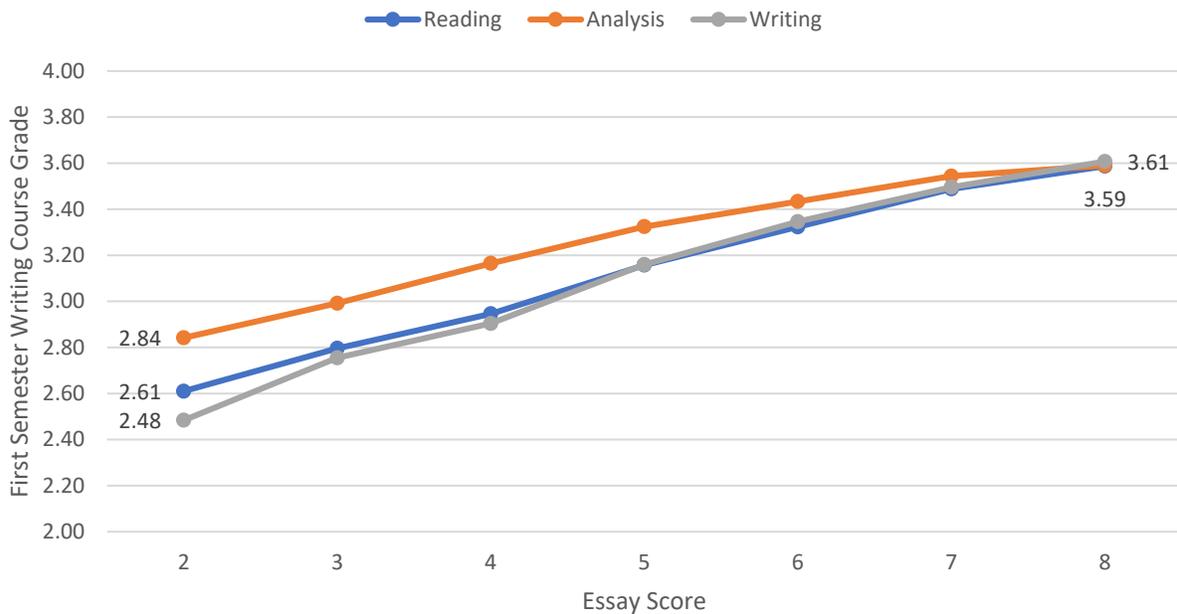
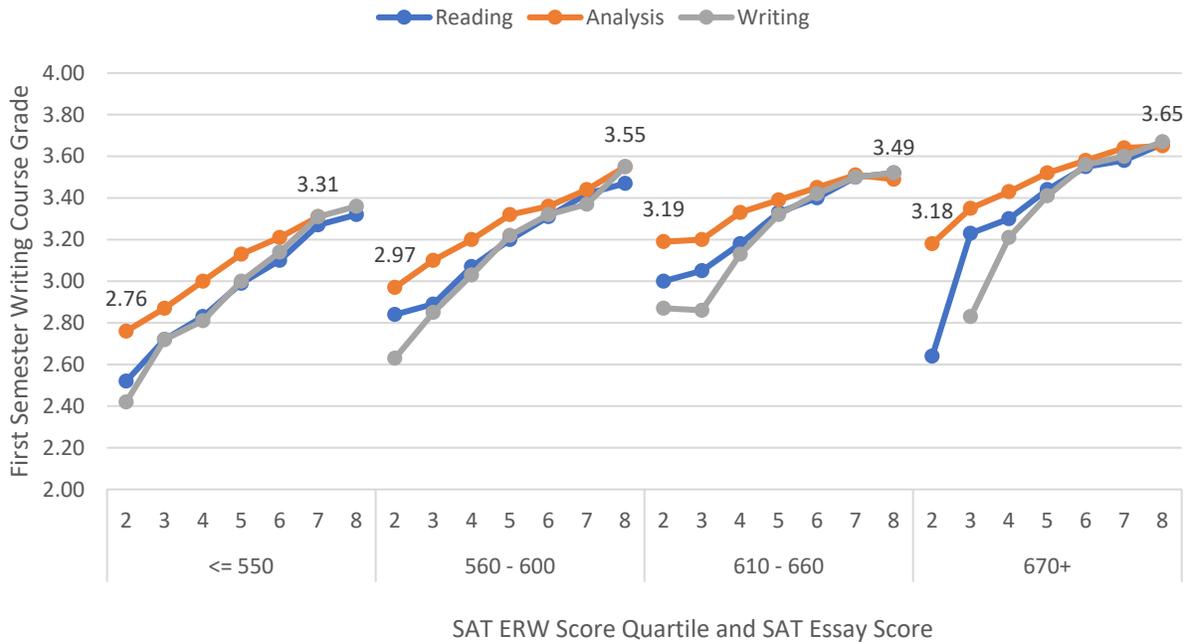


Figure 6 depicts the validity of the SAT Essay scores for predicting FSWCG after controlling for SAT ERW section score. The same trends from Figure 2 and Figure 4 can be seen here—it is evident that across all SAT ERW section score quartiles, that the relationship between SAT Essay scores with FSWCG remains clear and positive. All students within an SAT ERW section quartile share very similar SAT ERW section scores, yet the additional information gleaned from each SAT Essay score provides unique and supplementary insight regarding student performance in first semester writing courses. For example, as the graph below shows, among all students with an SAT ERW score between 610 and 660 and an SAT Essay Writing score of 3, average FSWCG performance is 2.86 while those with an SAT Essay Writing score of 7 have an average FSWCG of 3.50. Across most SAT ERW quartiles it appears that students with the highest SAT Essay scores (7 and 8) perform quite similarly in college, however below a score of 7, greater distinction in student performance is made demonstrating the utility of the SAT Essay for identifying those students who might need academic support in writing.

As we saw with FYGPA and EWGPA, Figure 5 and Figure 6 both show that SAT Essay Writing score has the steepest line of all three SAT Essay scores with average FSWCG. This illustrates that the SAT Essay Writing score has the strongest relationship with FSWCG. This is echoed in the correlations in Table 3 and especially true at the lower end of the SAT Essay score scale.

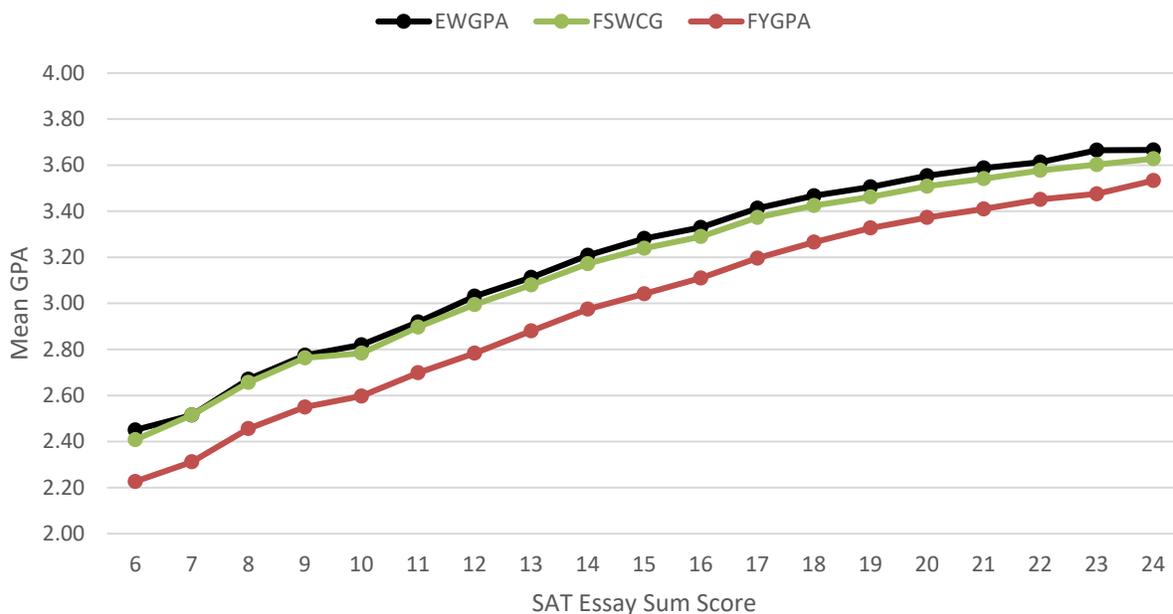
Figure 6: Mean FSWCG by ERW Section Quartile and SAT Essay Score



### Comparison Across Outcomes

Figure 7 compares the three outcomes in this study (EWGPA, FSWCG, and FYGPA) to each other across the score points for the sum of the three SAT Essay scores, which combines the three SAT Essay scores into one single measure by adding them. Recall that this is a score specially calculated for this study and is not reported by the College Board. **There is a positive relationship between the SAT Essay sum score and each GPA examined in this study.** As an example from Figure 7, students earning an SAT Essay sum score of 10 have, on average, an EWGPA of 2.82, a FSWCG of 2.78, and a FYGPA of 2.60. Alternatively, students earning an SAT Essay sum score of 21 have, on average, an EWGPA of 3.59, a FSWCG of 3.54, and a FYGPA of 3.37.

Figure 7: Mean GPA by SAT Essay Sum Score



## Probability Analyses

### English & Writing GPA (EWGPA)<sup>2</sup>

Another way to illustrate the added value of SAT Essay scores above the SAT ERW section score is presented in Figure 8 through Figure 11. First, we dichotomized the outcome measures based on whether students earned a 2.50 or higher EWGPA. A 2.50 or higher was selected because a student with this GPA or higher is likely not necessarily at risk for leaving the institution (Westrick et al., 2019).<sup>3</sup> Next, we used logistic regression to determine the probability of a student meeting the criterion of interest given their SAT ERW section scores and SAT Essay scores. As there are multiple predictors, there is never a single cut score on either measure. Rather, the two scores are compensatory in nature, and a certain probability of success, .75 for example, may exist for multiple combinations of SAT ERW section scores and SAT Essay scores. These probability analyses are intended to inform our understanding of the utility of SAT Essay scores in course placement decisions and therefore the outcome measure of FYGPA was not examined. The following graphs, Figure 8 through Figure 11, are related to EWGPA, and present the probabilities of EWGPA success for different combinations of SAT ERW section scores with SAT Essay scores.

<sup>2</sup> Six institutions with 352 students total were excluded from these analyses because every student earned a 2.50 or higher EWGPA. One additional institution (n = 40) was excluded from the SAT Essay Analysis and SAT Essay sum score analyses because nearly all students achieved the criterion and the model did not converge. Another institution (n = 65) was excluded from the SAT Essay Reading and SAT Essay Writing analyses for the same reason.

<sup>3</sup> A recent study of this overall sample showed that the average FYGPA of students leaving the institution after the first year was a 2.28.

The probabilities of success given students' SAT ERW scores and SAT Essay Reading scores to predict EWGPA are graphed in Figure 8. **At every SAT ERW section score point, we gain a more accurate understanding of student success in English coursework with SAT Essay Reading score information.** For example, for students with an SAT ERW score of 500, those with an SAT Essay Reading score of 3 have a 75% probability of earning a 2.50 or higher EWGPA while those with a SAT Essay Reading score of 7 have an 89% probability of earning a 2.50 or higher EWGPA. There tends to be greater differentiation in EWGPA performance by SAT Essay Reading score when the SAT ERW score is less than 700, indicating there is greater value in the additional information from SAT Essay scores for students with weaker SAT ERW performance.

Figure 8: Probability of Earning a 2.50 EWGPA Given SAT ERW Section Scores and SAT Essay Reading Score

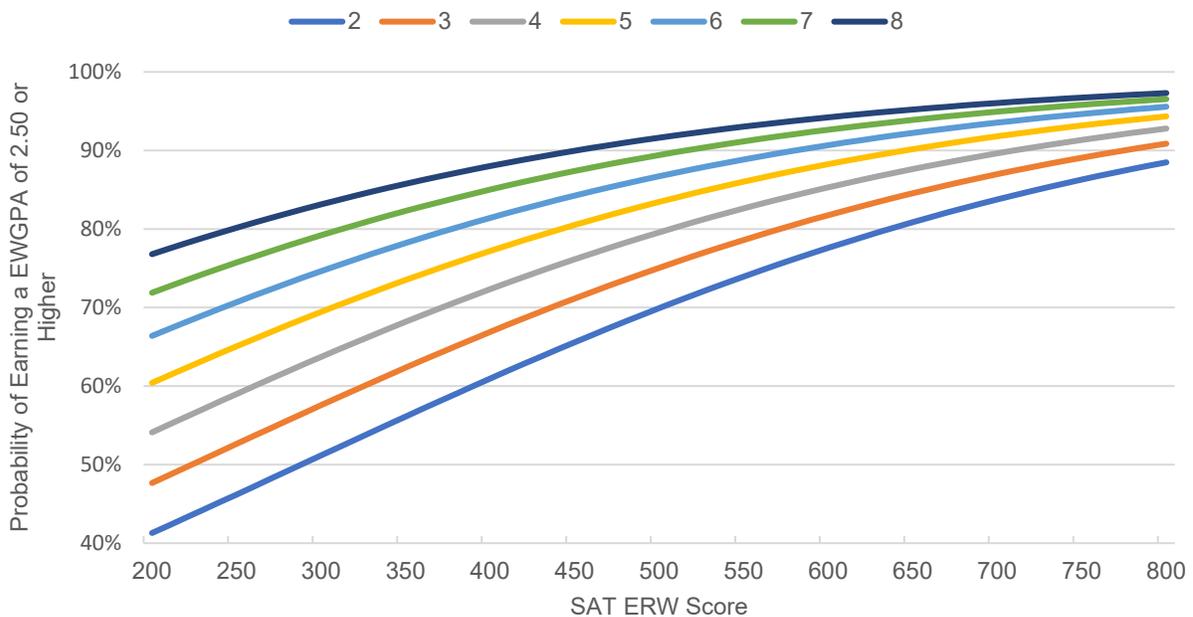


Figure 9 through Figure 11 show a similar pattern. **At each SAT ERW score point, the probability of a student earning 2.50 or higher EWGPA increases with each additional SAT Essay Analysis score, SAT Essay Writing score, and SAT Essay sum score.**

Figure 9: Probability of Earning a 2.50 EWGPA Given SAT ERW Section Scores and SAT Essay Analysis Score

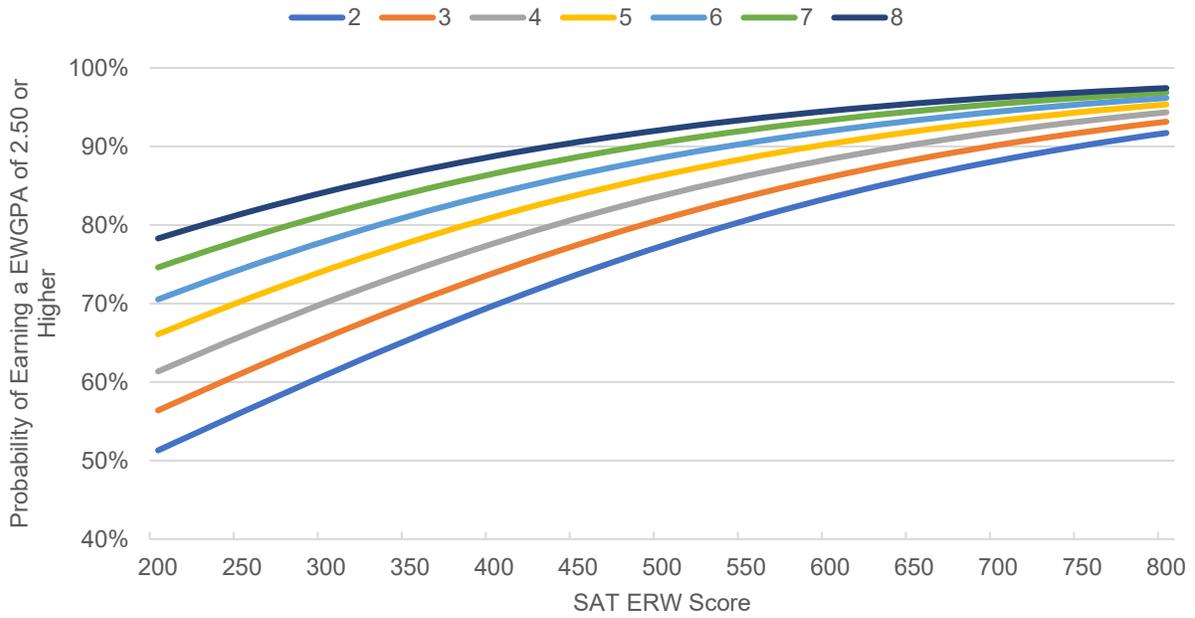


Figure 10: Probability of Earning a 2.50 EWGPA Given SAT ERW Section Scores and SAT Essay Writing Score

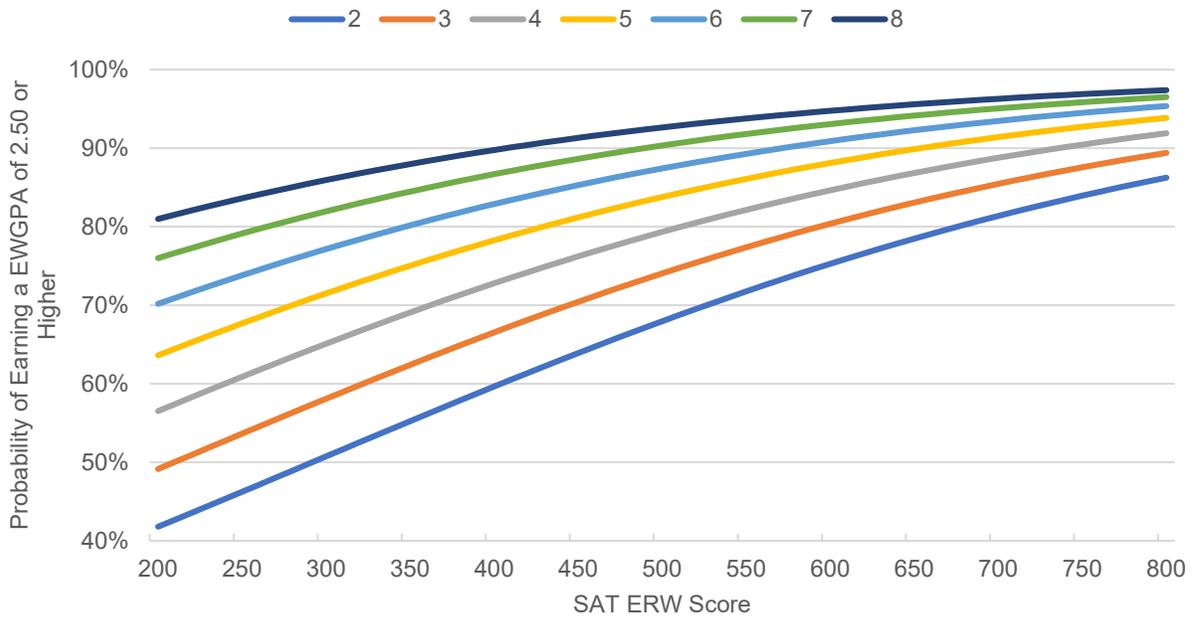
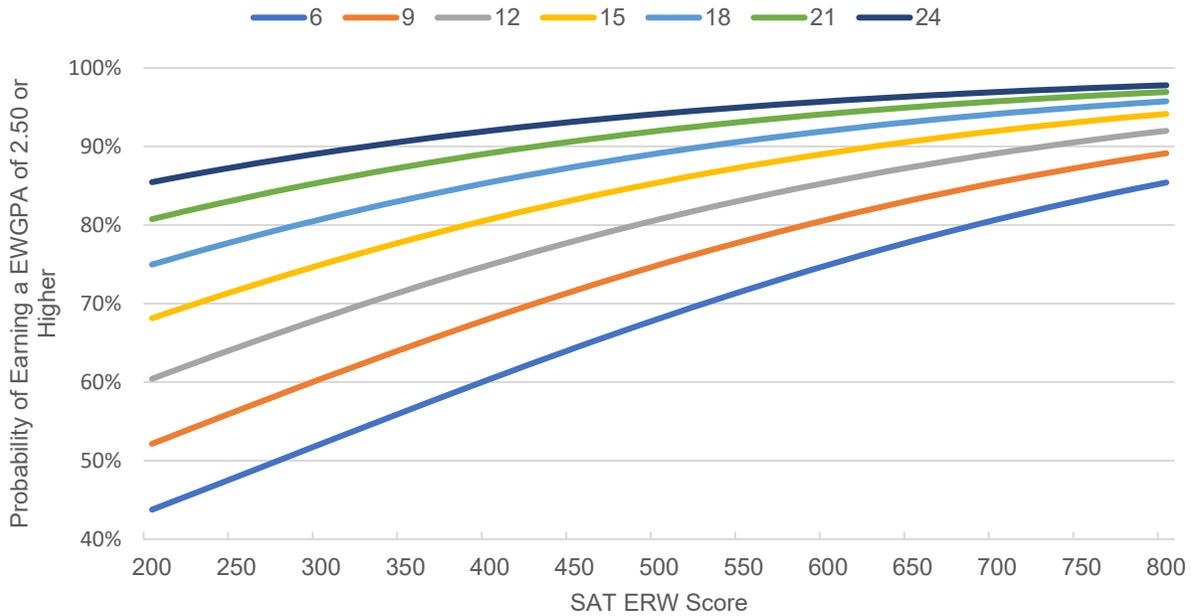


Figure 11: Probability of Earning a 2.50 EWGPA Given SAT ERW Section Scores and SAT Essay Sum Score



#### First Semester Writing Course Grade (FSWCG)<sup>4</sup>

Figure 12 through Figure 15 show the same general pattern for first semester writing course grade.

**Regardless of which SAT Essay score (Reading, Analysis, Writing, or sum) is being examined, SAT Essay scores provide meaningful information in predicting a student’s probability of earning a 2.50 or higher FSWCG at every point on the SAT ERW scale.**

<sup>4</sup> Five institutions with 109 students total were excluded from these analyses because every student earned a 2.50 or higher FSWCG. One additional institution (n = 19) was excluded from the SAT Essay Analysis analyses because nearly all students achieved the criterion and the model did not converge. For the same reason, four institutions (n = 74) were excluded from the SAT Essay Reading analyses, four institutions (n = 137) were excluded from the SAT Essay Writing analyses, and three institutions (n = 120) were excluded from the SAT Sum score analyses.

Figure 12: Probability of Earning a 2.50 FSWCG Given SAT ERW Section Scores and SAT Essay Reading Score

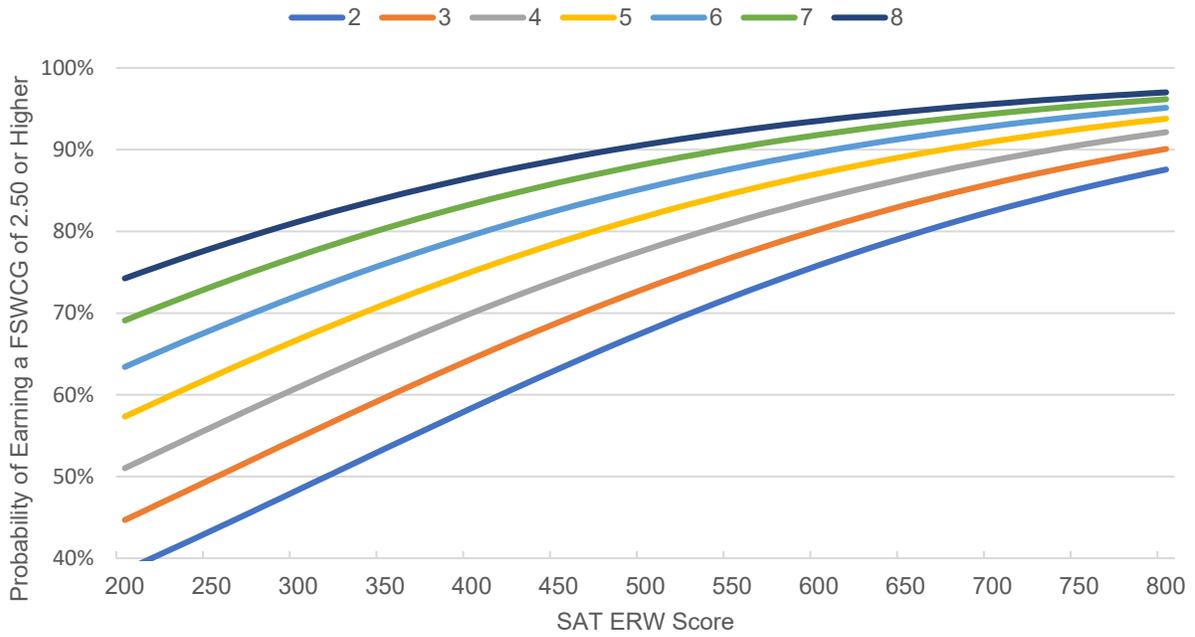


Figure 13: Probability of Earning a 2.50 FSWCG Given SAT ERW Section Scores and SAT Essay Analysis Score

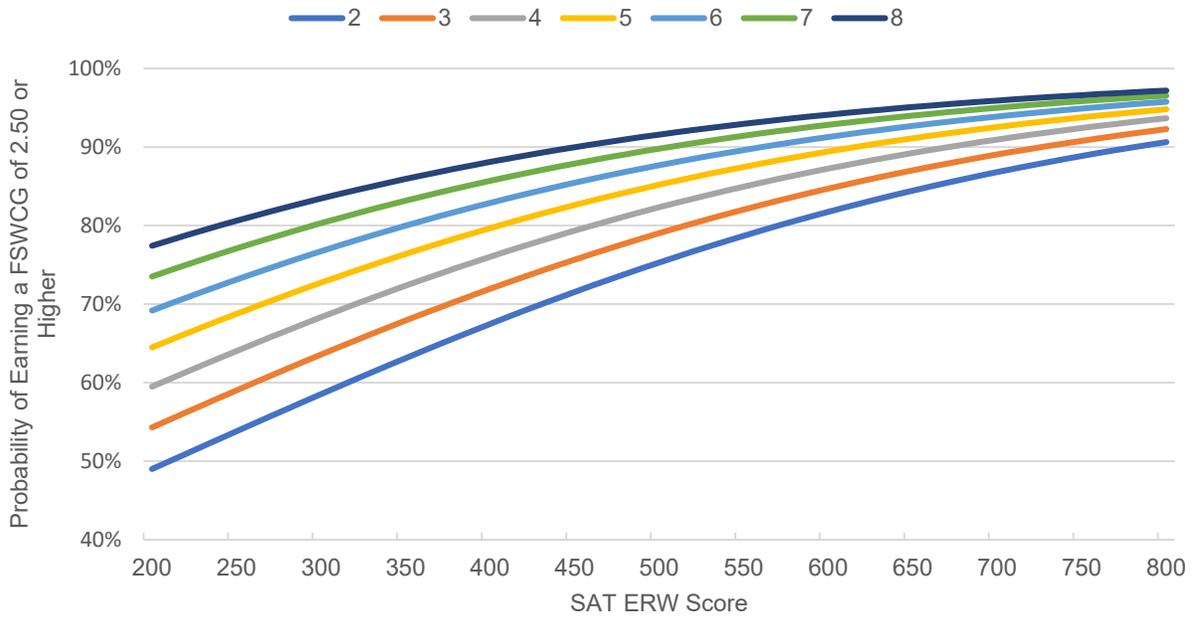


Figure 14: Probability of Earning a 2.50 FSWCG Given SAT ERW Section Scores and SAT Essay Writing Score

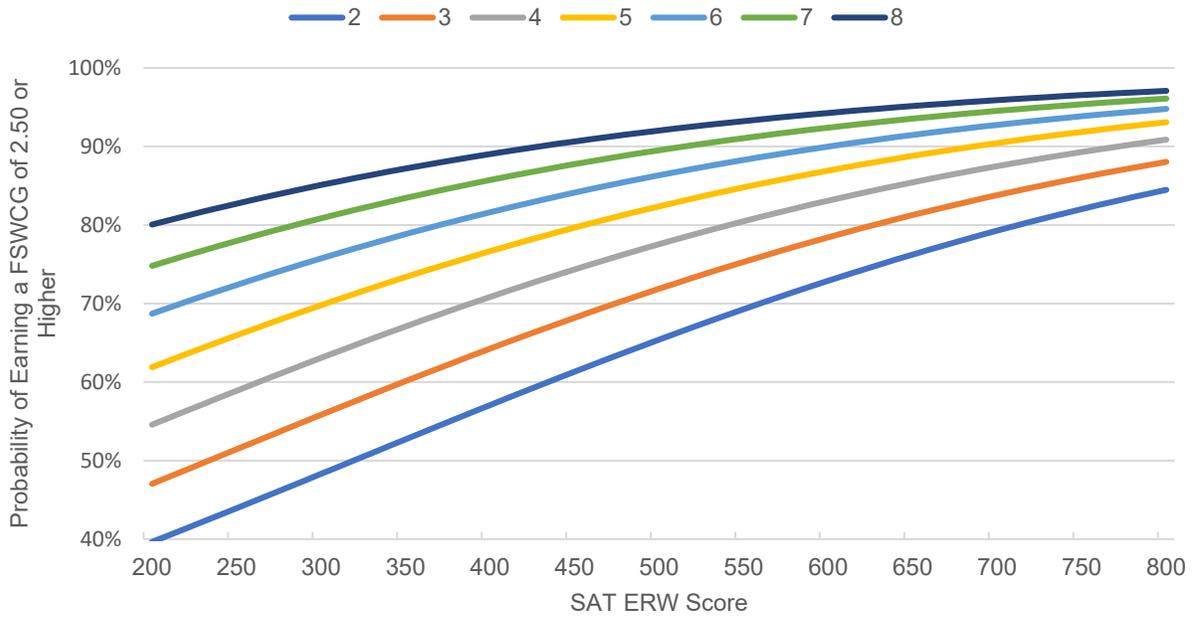
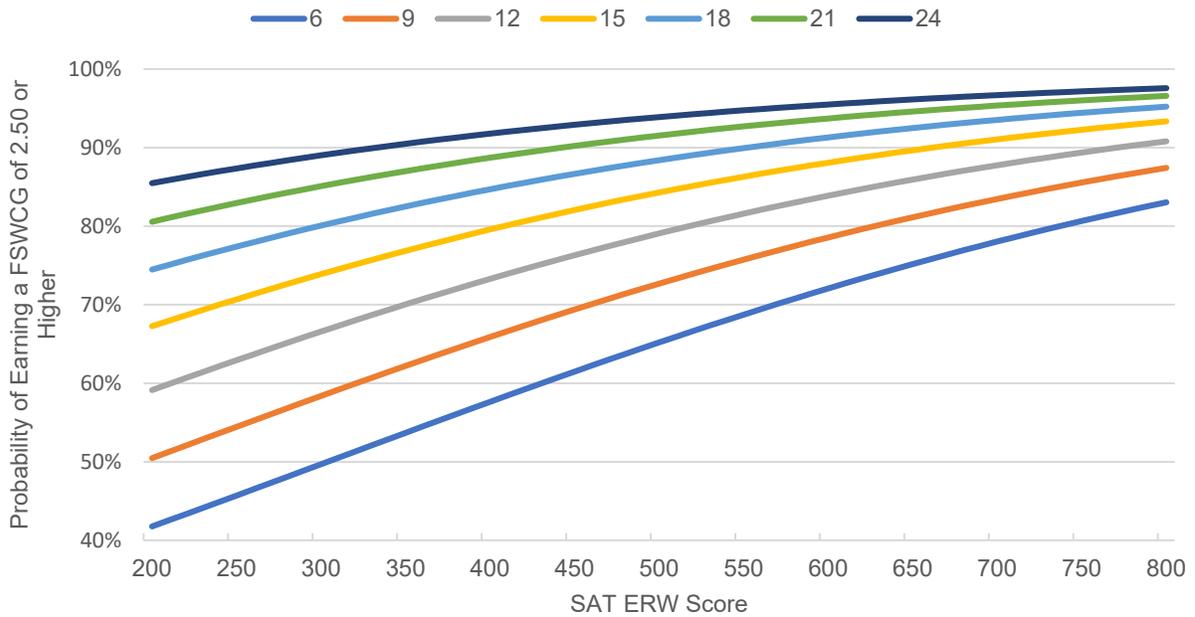


Figure 15: Probability of Earning a 2.50 FSWCG Given SAT ERW Section Scores and SAT Essay Sum Score



Perhaps the most interesting finding from the probability analyses is that a three-point increase in the SAT Essay sum score is roughly equivalent to a 100-point increase in the SAT ERW score. In Table D 1 and Table D 2, the probabilities of earning a 2.50 or higher EWGPA and the probabilities of earning 2.50 or higher FSWCG, respectively, are displayed in tabular form. For example, in Table D 1, a student with an SAT ERW score of 800 and an SAT Essay sum score of 6 has an 85% chance of earning 2.50 or higher EWGPA. Following the diagonal to the upper right corner, in each cell the probability remains the same (.85) for every 100-point decrease in SAT ERW score and three-point increase in SAT Essay sum score. The probabilities of earning 2.50 or higher FSWCG (Table D 2) do not display this pattern as precisely, but they do indicate the same the general trend.

**Using SAT Essay scores in conjunction with SAT ERW scores in a compensatory model like the one illustrated above helps institutions to predict a student’s likelihood of succeeding in writing-intensive courses despite having a low level of performance on either of the two predictors. Including SAT Essay scores with SAT ERW scores increases an institution’s ability to identify applicants who may excel despite having low SAT ERW scores and applicants who may struggle despite high SAT ERW scores. The ability to identify students who may struggle academically allows institutions to target these students for academic support, which likely benefits both the student and the institution regarding course success, overall academic performance, and, ultimately, student retention.**

## Discussion

This study represents the first large-scale, national effort to examine relationships between new SAT Essay scores and related college outcomes, including overall first-year grade point average (FYGPA), the average of all English and Writing course grades in the first semester (EWGPA), and the first semester writing course grade (FSWCG) among the fall 2017 entering college cohort. **Results show that SAT Essay Reading, Analysis, and Writing scores, as well as the SAT Essay sum score (Reading + Analysis + Writing) are all positively related to performance in the first year in college, generally, and more specifically in English and Writing coursework. Moreover, the results indicate that the SAT Essay scores add incremental validity beyond that provided by the SAT ERW score and HSGPA to predict college outcomes.**

The multiple correlations for HSGPA, SAT ERW score, and the three SAT Essay scores were .02 higher than the multiple correlations for HSGPA and SAT ERW score without the SAT Essay scores for both EWGPA and FSWCG. In the institutional subgroup correlation analyses, the same general pattern was found. However, the student subgroup correlation analyses showed that in many cases, the SAT Essay scores added much more incremental validity than found in the overall analyses. For example, the incremental validity of the SAT Essay scores above HSGPA and SAT ERW were .11 and .12 for EWGPA and FSWCG, respectively, for students whose best language was Another Language (not English). The boost in incremental validity was smaller for students whose best language was English and Another Language, .04 for both outcomes, but this was twice as large as that found in the overall sample analyses. Similar patterns were found in the analyses based on students’ race and ethnicity, notably students who identified as being Two or More Races (.09 for both EWGPA and FSWCG), Black or African

American (.07 for both outcomes), Asian (.05 for EWGPA and .06 for FSWCG), and Hispanic or Latino (.03 for EWGPA and .04 for FSWCG). **In other words, for some student subgroups, the SAT Essay can improve our ability to predict their college performance in English and Writing by more than 30% above using the combination of HSGPA and SAT ERW scores. As the nation's student population becomes more diverse, institutions may find that the SAT Essay scores add even greater value over time, particularly for identifying students who may struggle with the writing skills needed to be successful in college.**

Additional analyses examining the informational contributions of the three SAT Essay scores above the SAT ERW score, show clear positive relationships between the Essay scores with all outcomes examined *within* SAT ERW score quartiles. This indicates that the SAT Essay, a direct writing assessment, is providing unique information about the student's preparedness for college-level writing, beyond the information provided by the SAT ERW score, which includes an indirect (multiple choice) writing assessment. **The combination of the SAT ERW score and the SAT Essay scores provides institutions with the most comprehensive understanding of how a student will perform in college-level writing coursework. This information can assist institutions in understanding which first-year writing courses students are ready to be successful in and which students may need additional writing instruction and support to be successful more generally in their first year of college.**

Additional analyses examined the probability of students achieving a 2.50 or higher in first semester English and Writing coursework and also more specifically in their first semester Writing courses, based on both their SAT ERW scores and their SAT Essay scores. **Results showed that SAT Essay scores added information at every SAT ERW score point. This was especially true for students with lower SAT ERW scores as SAT Essay scores added more information as SAT ERW scores decreased.** The results also suggested that, in a compensatory model, three points on the SAT Essay sum score – or a one-point difference on the average of the three essay scores – was roughly equivalent to a 100-point difference on the SAT ERW score when predicting a student's probability of success in writing-intensive courses. **The compensatory nature of the two scores provides institutions with information that may help them identify students who may succeed in their studies despite having a low score on one of the two measures.**

The results of this SAT Essay validity study are quite encouraging as institutions are enrolling more socioeconomically, linguistically, and racially diverse students to college than ever before (Kanno & Cromley, 2015; Snyder, deBray, & Dillow, 2019) and need effective tools to identify student academic weaknesses in order to thoughtfully target interventions to situate all students for success. This need has become quite apparent as dramatic gaps in college retention and completion rates by income levels and racial ethnic groups persist (Cahalan, Perna, Yamashita, Wright-Kim, & Jiang, 2019). For example, low-income and/or first-generation students in the 2011 entering college cohort were twice as likely to leave college without attaining a degree (30% to 36% no longer enrolled) by the third year as student who were not low-income or first-generation (15% no longer enrolled; Cahalan et al., 2018). To address these inequalities in college preparation and success, collaboration across various campus offices, including admissions, academic support centers, student life, and faculty, among others, remains critical.

In particular first-year writing programs, in partnership with campus writing centers, can work together to improve student writing performance, which is the most universally agreed upon learning outcome in higher education and thus inextricably linked to college retention and completion (AAC&U, 2016; Wilson, 2018).

**Based on the results of the current study, arming enrollment management professionals as well as academic advisors and writing program faculty and staff with student’s SAT Essay scores can provide highly useful and unique information about student writing performance and areas of particular strength and weakness.** As one writing professor and researcher notes, “We are at a historical moment that calls us both to uphold high standards for college writing instruction and also to strike down barriers that many students face in meeting those standards” (Wilson, 2018, p. 21). The use of students’ SAT Essay scores, coupled with their SAT ERW scores and HSGPA, can provide the most clear and accurate picture of how a student is expected to perform in first semester Writing and English coursework, which can then allow institutions to broaden access with regard to enrollment while providing the appropriate instructional scaffolding to the students who will need it most in order to be successful there.

## Conclusion

Findings from the current study demonstrate the value and effectiveness of the SAT Essay scores as instruments to inform decisions related to admission and placement and assist institutions in targeting instructional supports and interventions for students who may need them to succeed in their writing-intensive courses in college. This study finds that:

- SAT Essay scores add incremental validity beyond that of HSGPA and SAT ERW scores to predict performance in college English and writing coursework, as well as overall college performance. More information is better than less information.
- For some student subgroups, the SAT Essay can improve our ability to predict their college performance in English and Writing by more than 30% above using the combination of HSGPA and SAT ERW scores. The highest amounts of incremental validity for SAT Essay scores were found among students whose best language was not English alone and among students who identified as Two or More Races, Black or African American, Asian, and Hispanic or Latino.
- SAT Essay scores and SAT ERW scores are both related to performance in writing courses but measure slightly different aspects of academic preparation.
- SAT Essay scores add information about student performance in college English and writing coursework at every point on the SAT ERW score scale.

Using SAT Essay scores in conjunction with SAT ERW scores is a powerful way to predict future performance in writing courses. College Board will continue to maintain a robust and ongoing national SAT validity research agenda, which will include the study of SAT score relationships with performance in particular college courses and academic domains, as well as with longer-term outcomes, including degree completion. College Board also continues to provide a free online service (Admitted Class Evaluation Service) for higher education institutions and systems to conduct campus or system-specific validity studies (with outcomes such as FYGPA, course grades, retention, and completion) that meet their specific institutional needs.

## References

- Association of American Colleges & Universities. (2016). *Recent trends in general education design, learning outcomes, and teaching approaches: Key findings from a survey among administrators at AAC&U member institutions*. Washington, DC: Association of American Colleges and Universities,
- Beyer, C., Gillmore, G. M., & Fisher, A. T. (2007). *Inside the undergraduate experience*. San Francisco: Jossey-Bass.
- Cahalan, M., Perna, L. W., Yamashita, M., Wright-Kim, J. & Jiang, N. (2019). *2019 Indicators of Higher Education Equity in the United States: Historical Trend Report*. Washington, DC: The Pell Institute for the Study of Opportunity in Higher Education, Council for Opportunity in Education (COE), and Alliance for Higher Education and Democracy of the University of Pennsylvania (PennAHEAD).
- College Board. (2017). *SAT Suite of Assessments Technical Manual: Characteristics of the SAT*. New York: The College Board.
- College Board. (In preparation). *College Board National Curriculum Survey Report 2019*.
- Conley, D. (2007). Challenges in the transition from high school to college. In N. Hoffman, J. Vargas, A. Venezia, & M. S. Miller (Eds.), *Minding the gap*. Cambridge, MA: Harvard University Press.
- Graham, S., Harris, K., & Hebert, M. A. (2011). Informing writing: The benefits of formative assessment. *A Carnegie Corporation Time to Act Report*. Washington, DC: Alliance for Excellent Education.
- Kanno, Y., & Cromley, J.C. (2015). English language learners' pathways to four-year colleges. *Teachers College Record*, 117(120306), 1-44.
- Kuh, G. D. (2006, June). Thinking DEEPLY about academic advising and student engagement. *Academic Advising Today*, 36(2). Retrieved from <http://www.nacada.ksu.edu/Resources/Academic-Advising-Today/View-Articles/Thinking-DEEPLY-about-Academic-Advising-and-Student-Engagement.aspx>
- Kuncel, N. R., Credé, M., & Thomas, L. L. (2005). The validity of self-reported grade point average, class ranks, and test scores: A meta-analysis and review of the literature. *Review of Educational Research*, 75, 63–82.
- Laird, R. (2005). What is it we think we are trying to fix and how should we fix it? A view from the admission office. In W. J. Camara, & E. W. Kimmel (Eds.), *Choosing students: Higher education admission tools for the 21st century* (pp. 13–32). Mahwah, NJ: Lawrence Erlbaum.
- Marini, J. P., Shaw, E. J., Young, L., & Ewing, M. (2018). *Getting to know your criterion: Examining college course grades and GPAs over time* (College Board Research Report). New York: The College Board.

- Mattern, K. D., & Patterson, B. F. (2014). *Synthesis of recent SAT validity findings: Trend data over time and cohorts* (College Board Research in Review 2014-1). New York: The College Board.
- Matzen, R. N., & Hoyt, J. E. (2004). Basic writing placement with holistically scored essays: Research evidence. *Journal of Developmental Education*, 28(1), 2–4, 6, 8, 10, 12, 34.
- Sawyer, R. (2013). Beyond correlations: Usefulness of high school GPA and test scores in making college admission decisions. *Applied Measurement in Education*, 26(2), 89–112.
- Shaw, E. J. (2018). The core case for testing: The state of our research knowledge. In J. Buckley, L. Letukas, & B. Wildavsky (Eds.), *Measuring success: Testing, grades, and the future of college admissions* (pp. 40–63). Baltimore: Johns Hopkins University Press.
- Shaw, E. J., & Kobrin, J. L. (2012). *The SAT Essay and college performance* (College Board Research Report (2012–9)). New York: The College Board.
- Shaw, E. J., & Mattern, K. D. (2009). *Examining the Accuracy of Self-Reported High School Grade Point Average* (Research Report 2009–5). New York: College Board.
- Snyder, T.D., de Brey, C., & Dillow, S.A. (2019). *Digest of Education Statistics 2017* (NCES 2018-070). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
- Sparks, J. R., Song, Y., Brantley, W., & Liu, O.L. (2014). *Assessing written communication in higher education: Review and recommendations for next-generation assessments* (ETS RR-14-37). Princeton, NJ: ETS.
- Stiggins, R. J. (1982). A comparison of direct and indirect writing assessment methods. *Research in the Teaching of English*, 16(2), 101–114.
- Stockman, F. & Mureithi, C. (2019, September 8). Cheating Goes Global as U.S. Students Outsource College Papers. *The New York Times*, Section A, p1.
- Westrick, P., Marini, J.P., Young, L., Ng, H., Shmueli, D., & Shaw, E.J. (2019). *Validity of the SAT for Predicting First-Year Grades and Retention to the Second Year* (College Board Research Report). New York: College Board.
- Wilder, L. & Yagaleski, R. P. (2018). Describing cross-disciplinary analytic moves in first-year college student writing. *Research in the Teaching of English*, 52(4), 382-403.
- Wilson, J. (2018). “Not alone in the process”: Designing equitable support for first-year writers in the writing center. *Praxis: A Writing Center Journal*, 15(2), 15-23.

## Appendix A

### Example of SAT Essay Prompt and Source Text

#### Prompt

As you read the passage below, consider how Paul Bogard uses

- evidence, such as facts or examples, to support claims.
- reasoning to develop ideas and to connect claims and evidence.
- stylistic or persuasive elements, such as word choice or appeals to emotion, to add power to the ideas expressed.

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**Adapted from Paul Bogard, “Let There Be Dark.” ©2012 by Los Angeles Times. Originally published December 21, 2012.**

At my family’s cabin on a Minnesota lake, I knew woods so dark that my hands disappeared before my eyes. I knew night skies in which meteors left smoky trails across sugary spreads of stars. But now, when 8 of 10 children born in the United States will never know a sky dark enough for the Milky Way, I worry we are rapidly losing night’s natural darkness before realizing its worth. This winter solstice, as we cheer the days’ gradual movement back toward light, let us also remember the irreplaceable value of darkness.

All life evolved to the steady rhythm of bright days and dark nights. Today, though, when we feel the closeness of nightfall, we reach quickly for a light switch. And too little darkness, meaning too much artificial light at night, spells trouble for all.

Already the World Health Organization classifies working the night shift as a probable human carcinogen, and the American Medical Association has voiced its unanimous support for “light pollution reduction efforts and glare reduction efforts at both the national and state levels.” Our bodies need darkness to produce the hormone melatonin, which keeps certain cancers from developing, and our bodies need darkness for sleep. Sleep disorders have been linked to diabetes, obesity, cardiovascular disease and depression, and recent research suggests one main cause of “short sleep” is “long light.” Whether we work at night or simply take our tablets, notebooks and smartphones to bed, there isn’t a place for this much artificial light in our lives.

The rest of the world depends on darkness as well, including nocturnal and crepuscular species of birds, insects, mammals, fish and reptiles. Some examples are well known—the 400 species of birds that migrate at night in North America, the sea turtles that come ashore to lay their eggs—and some are not, such as the bats that save American farmers billions in pest control and the moths that pollinate 80% of

the world's flora. Ecological light pollution is like the bulldozer of the night, wrecking habitat and disrupting ecosystems several billion years in the making. Simply put, without darkness, Earth's ecology would collapse....

In today's crowded, louder, more fast-paced world, night's darkness can provide solitude, quiet and stillness, qualities increasingly in short supply. Every religious tradition has considered darkness invaluable for a soulful life, and the chance to witness the universe has inspired artists, philosophers and everyday stargazers since time began. In a world awash with electric light...how would Van Gogh have given the world his "Starry Night"? Who knows what this vision of the night sky might inspire in each of us, in our children or grandchildren?

Yet all over the world, our nights are growing brighter. In the United States and Western Europe, the amount of light in the sky increases an average of about 6% every year. Computer images of the United States at night, based on NASA photographs, show that what was a very dark country as recently as the 1950s is now nearly covered with a blanket of light. Much of this light is wasted energy, which means wasted dollars. Those of us over 35 are perhaps among the last generation to have known truly dark nights. Even the northern lake where I was lucky to spend my summers has seen its darkness diminish.

It doesn't have to be this way. Light pollution is readily within our ability to solve, using new lighting technologies and shielding existing lights. Already, many cities and towns across North America and Europe are changing to LED streetlights, which offer dramatic possibilities for controlling wasted light. Other communities are finding success with simply turning off portions of their public lighting after midnight. Even Paris, the famed "city of light," which already turns off its monument lighting after 1 a.m., will this summer start to require its shops, offices and public buildings to turn off lights after 2 a.m. Though primarily designed to save energy, such reductions in light will also go far in addressing light pollution. But we will never truly address the problem of light pollution until we become aware of the irreplaceable value and beauty of the darkness we are losing.

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Write an essay in which you explain how Paul Bogard builds an argument to persuade his audience that natural darkness should be preserved. In your essay, analyze how Bogard uses one or more of the features in the directions that precede the passage (or features of your own choice) to strengthen the logic and persuasiveness of his argument. Be sure that your analysis focuses on the most relevant features of the passage.

Your essay should not explain whether you agree with Bogard's claims, but rather explain how Bogard builds an argument to persuade his audience.

## Appendix B: Student Subgroups

Table B 1: Descriptive Statistics for Study Variables by Student Subgroups

Student Characteristic		<i>k</i>	<i>n</i>	SAT ERW		SAT Essay Reading		SAT Essay Analysis		SAT Essay Writing		SAT Essay Sum		HSGPA		FYGPA		EWGPA		FSWCG	
				<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gender	Male	169	78,063	609	82	5	1.1	4	1.4	5	1.1	15	3.3	3.65	0.48	2.95	0.84	3.10	1.00	3.04	1.02
	Female	171	105,397	596	81	5	1.1	5	1.4	6	1.1	16	3.2	3.72	0.44	3.14	0.74	3.34	0.85	3.29	0.88
Racial / Ethnic Identity	American Indian or Alaska Native	116	494	565	75	5	1.1	4	1.4	5	1.1	14	3.3	3.59	0.49	2.75	0.92	3.01	1.08	3.01	1.06
	Asian	165	23,337	623	80	6	1.1	5	1.4	6	1.1	16	3.2	3.78	0.40	3.18	0.66	3.31	0.79	3.27	0.80
	Black or African American	171	11,934	556	81	5	1.2	4	1.4	5	1.2	14	3.4	3.50	0.53	2.73	0.86	2.98	1.06	2.94	1.09
	Hispanic or Latino	171	42,000	571	80	5	1.1	4	1.4	5	1.1	15	3.2	3.65	0.47	2.86	0.82	3.07	0.98	3.02	0.99
	Native Hawaiian or Other Pacific Islander	83	269	588	76	5	1.1	5	1.4	5	1.0	15	3.2	3.63	0.47	2.77	0.86	3.05	1.00	3.04	0.96
	White	170	95,767	614	76	6	1.1	5	1.4	6	1.1	16	3.2	3.71	0.45	3.16	0.75	3.35	0.87	3.29	0.91
	Two or More Races	168	7,148	622	78	6	1.1	5	1.4	6	1.1	16	3.2	3.73	0.45	3.07	0.79	3.25	0.95	3.20	0.98
	Not Stated	168	2,511	576	88	5	1.2	4	1.4	5	1.2	15	3.4	3.55	0.51	2.87	0.89	3.06	1.00	2.98	1.04
Best Language	English Only	171	147,713	607	80	5	1.1	5	1.4	6	1.1	16	3.2	3.70	0.46	3.08	0.78	3.27	0.91	3.22	0.95
	English and Another	171	31,798	578	84	5	1.1	4	1.4	5	1.1	15	3.3	3.68	0.46	2.93	0.79	3.10	0.95	3.05	0.96
	Another Language	145	3,102	569	89	5	1.2	4	1.4	5	1.2	14	3.5	3.72	0.44	3.06	0.77	3.14	0.88	3.07	0.93
	Not Stated	150	847	577	91	5	1.2	4	1.4	5	1.2	15	3.4	3.57	0.52	2.98	0.81	3.07	0.97	3.08	0.95
Highest Parental Education Level	No High School Diploma	169	11,660	542	76	5	1.1	4	1.3	5	1.1	14	3.2	3.62	0.48	2.76	0.82	2.97	0.98	2.94	0.98
	High School Diploma	171	39,110	571	77	5	1.1	4	1.4	5	1.1	15	3.2	3.63	0.48	2.85	0.84	3.09	1.00	3.04	1.02
	Associate Degree	171	12,240	578	76	5	1.1	4	1.4	5	1.1	15	3.2	3.64	0.48	2.93	0.83	3.15	0.99	3.10	1.02
	Bachelor's Degree	171	65,153	608	75	5	1.1	5	1.4	6	1.1	16	3.2	3.71	0.45	3.13	0.74	3.31	0.88	3.26	0.91
	Graduate Degree	171	52,839	636	76	6	1.1	5	1.4	6	1.1	16	3.2	3.76	0.44	3.23	0.70	3.39	0.82	3.34	0.86
Not Stated	166	2,458	543	87	5	1.2	4	1.4	5	1.2	14	3.3	3.49	0.52	2.73	0.91	2.93	1.07	2.92	1.07	
Overall		171	183,460	601	82	5	1.1	5	1.4	5	1.1	15	3.3	3.69	0.46	3.06	0.78	3.24	0.92	3.18	0.95

Note: *n* = subgroup sample size, *k* = number of institutions. The sample size for EWGPA is *n* = 73,491 and the sample size for FSWCG is *n* = 55,869.

Table B 2: Corrected Correlations of SAT Scores, SAT Essay Scores, and HSGPA with FYGPA by Student Subgroup

Student Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Gender	Male	168	78,049	.49	.37	.39	.40	.52	.59	.43	.51	.60
	Female	171	105,397	.54	.40	.42	.43	.53	.63	.46	.56	.63
Racial / Ethnic Identity	American Indian or Alaska Native	7	151	.24	.11	.16	.08	.30	.59	.53	.66	.76
	Asian	117	22987	.53	.39	.41	.42	.50	.60	.46	.56	.62
	Black or African American	130	11,614	.42	.34	.35	.37	.44	.52	.42	.48	.55
	Hispanic or Latino	150	41,836	.47	.36	.38	.39	.47	.55	.42	.50	.57
	Native Hawaiian or Other Pacific Islander	-	-	-	-	-	-	-	-	-	-	-
	Two or more races	99	6,611	.51	.38	.41	.41	.50	.61	.48	.57	.65
	White	169	95,766	.50	.39	.41	.42	.57	.62	.45	.52	.63
	No Response	63	1,922	.40	.32	.34	.33	.41	.54	.46	.53	.63
Best Language	English Only	171	147,713	.51	.39	.41	.42	.55	.62	.45	.54	.63
	English and Another	139	31,524	.48	.37	.39	.39	.48	.56	.43	.51	.58
	Another Language	40	2,563	.44	.38	.39	.40	.41	.54	.48	.55	.60
	Not Stated	13	273	.47	.41	.44	.43	.51	.63	.57	.64	.74
Highest Parental Education Level	No High School Diploma	75	11,105	.45	.34	.37	.36	.44	.53	.41	.49	.55
	High School Diploma	160	38,999	.46	.36	.38	.38	.49	.56	.42	.49	.57
	Associate Degree	126	11,840	.45	.35	.38	.38	.50	.57	.43	.50	.60
	Bachelor's Degree	170	65,141	.50	.39	.41	.42	.55	.62	.45	.53	.63
	Graduate Degree	167	52,794	.52	.39	.42	.43	.56	.63	.46	.55	.64
	Not Stated	57	1,881	.38	.30	.34	.32	.43	.56	.47	.55	.64
Overall		171	183,460	.51	.39	.41	.42	.54	.61	.45	.53	.62

Note: *n* = subgroup sample size, *k* = number of institutions. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

Table B 3: Corrected Correlations of SAT Scores, SAT Essay Scores, and HSGPA with EWGPA by Student Subgroup

Student Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Gender	Male	146	30,586	.34	.28	.29	.31	.39	.44	.34	.39	.46
	Female	159	42,652	.38	.30	.32	.33	.39	.46	.36	.42	.48
Racial / Ethnic Identity	American Indian or Alaska Native	2	35	.51	.10	.08	.20	.30	.54	.51	.76	.78
	Asian	72	7408	.37	.31	.32	.34	.34	.45	.39	.45	.50
	Black or African American	84	5,124	.33	.27	.29	.29	.36	.44	.36	.43	.51
	Hispanic or Latino	106	17,121	.33	.28	.29	.30	.35	.42	.34	.39	.45
	Native Hawaiian or Other Pacific Islander	-	-	-	-	-	-	-	-	-	-	-
	Two or more races	58	2,066	.36	.28	.30	.32	.37	.49	.42	.51	.58
	White	158	38,486	.32	.28	.29	.31	.42	.46	.34	.38	.48
No Response	26	583	.15	.18	.17	.20	.20	.46	.45	.53	.61	
Best Language	English Only	165	58,948	.35	.30	.30	.32	.41	.45	.35	.39	.47
	English and Another	100	12,418	.36	.29	.31	.31	.38	.45	.36	.42	.48
	Another Language	24	1,004	.26	.27	.29	.28	.21	.36	.37	.42	.47
	Not Stated	3	52	.28	.17	.24	.36	.57	.66	.50	.63	.81
Highest Parental Education Level	No High School Diploma	51	4,535	.32	.26	.28	.29	.32	.42	.36	.42	.47
	High School Diploma	122	16,537	.33	.28	.30	.31	.38	.43	.35	.39	.47
	Associate Degree	90	4,760	.29	.25	.27	.28	.37	.44	.38	.43	.52
	Bachelor's Degree	147	25,726	.34	.29	.30	.32	.42	.46	.35	.39	.49
	Graduate Degree	145	19,258	.35	.29	.31	.32	.40	.46	.36	.41	.49
Not Stated	25	635	.20	.13	.17	.17	.24	.41	.41	.48	.55	
Overall		165	73,462	.35	.30	.31	.32	.40	.45	.35	.39	.47

Note: *n* = subgroup sample size, *k* = number of institutions. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

Table B 4: Corrected Correlations of SAT Scores, SAT Essay Scores, and HSGPA with FSWCG by Student Subgroup

Student Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Gender	Male	121	23,816	.34	.28	.29	.31	.39	.44	.34	.39	.46
	Female	131	31,683	.38	.30	.32	.33	.40	.47	.36	.42	.49
Racial / Ethnic Identity	American Indian or Alaska Native	2	34	.55	.07	.10	.19	.32	.57	.49	.78	.80
	Asian	59	5210	.36	.29	.31	.33	.33	.45	.39	.45	.51
	Black or African American	68	4,168	.30	.25	.28	.27	.36	.43	.35	.41	.50
	Hispanic or Latino	91	13,499	.33	.28	.29	.30	.35	.42	.35	.40	.46
	Native Hawaiian or Other Pacific Islander	-	-	-	-	-	-	-	-	-	-	-
	Two or more races	45	1,464	.38	.29	.31	.32	.41	.52	.44	.52	.61
	White	126	28,576	.32	.28	.29	.31	.42	.46	.34	.37	.48
	No Response	15	376	.10	.16	.13	.20	.18	.46	.43	.49	.58
Best Language	English Only	137	44,622	.35	.30	.30	.32	.41	.46	.35	.39	.48
	English and Another	84	9,553	.35	.29	.31	.31	.37	.45	.36	.42	.48
	Another Language	18	572	.35	.33	.35	.33	.27	.46	.44	.52	.58
	Not Stated	2	36	.08	.04	.17	.29	.52	.59	.49	.56	.80
Highest Parental Education Level	No High School Diploma	48	3,708	.30	.25	.27	.27	.31	.42	.35	.41	.47
	High School Diploma	109	13,218	.34	.28	.30	.31	.38	.44	.36	.41	.48
	Associate Degree	75	3,713	.27	.24	.25	.26	.36	.44	.38	.43	.53
	Bachelor's Degree	123	19,399	.33	.29	.30	.32	.26	.30	.22	.26	.35
	Graduate Degree	115	13,469	.35	.29	.30	.32	.40	.46	.37	.42	.50
Not Stated	19	499	.21	.14	.17	.16	.25	.40	.40	.48	.54	
Overall		139	55,717	.35	.29	.31	.32	.40	.45	.35	.39	.47

Note: *n* = subgroup sample size, *k* = number of institutions. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

Table B 5: Raw Correlations of SAT Scores, SAT Essay Scores, and HSGPA with FYGPA by Student Subgroup

Student Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Gender	Male	168	78,049	.27	.19	.20	.21	.31	.39	.23	.31	.41
	Female	171	105,397	.33	.21	.22	.22	.31	.42	.25	.36	.43
Racial / Ethnic Identity	American Indian or Alaska Native	7	151	.23	.12	.19	.08	.33	.45	.37	.48	.60
	Asian	117	22,987	.27	.18	.18	.18	.23	.35	.23	.32	.38
	Black or African American	130	11,614	.22	.18	.19	.20	.26	.35	.26	.31	.40
	Hispanic or Latino	150	41,836	.26	.19	.20	.20	.26	.35	.24	.30	.38
	Native Hawaiian or Other Pacific Islander	-	-	-	-	-	-	-	-	-	-	-
	Two or more races	99	6,611	.30	.18	.21	.20	.29	.40	.29	.39	.46
	White	169	95,766	.27	.19	.21	.22	.36	.41	.24	.31	.43
	No Response	63	1,922	.25	.18	.19	.17	.26	.39	.35	.42	.50
Best Language	English Only	171	147,713	.30	.20	.22	.23	.34	.41	.25	.33	.43
	English and Another	139	31,524	.27	.19	.20	.20	.25	.36	.24	.32	.39
	Another Language	40	2,563	.22	.23	.24	.24	.17	.32	.32	.38	.43
	Not Stated	13	273	.28	.27	.26	.29	.34	.45	.46	.53	.59
Highest Parental Education Level	No High School Diploma	75	11,105	.23	.16	.18	.16	.22	.33	.23	.30	.37
	High School Diploma	160	38,999	.25	.19	.20	.20	.29	.37	.24	.31	.40
	Associate Degree	126	11,840	.25	.17	.21	.19	.32	.39	.27	.33	.44
	Bachelor's Degree	170	65,141	.27	.19	.21	.21	.34	.40	.24	.32	.42
	Graduate Degree	167	52,794	.28	.19	.21	.22	.33	.40	.25	.33	.43
	Not Stated	57	1,881	.22	.17	.20	.17	.30	.39	.33	.41	.50
Overall		171	183,460	.29	.21	.22	.22	.32	.40	.25	.33	.42

Note: *n* = subgroup sample size, *k* = number of institutions. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

Table B 6: Raw Correlations of SAT Scores, SAT Essay Scores, and HSGPA with EWGPA by Student Subgroup

Student Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT-ERW, HSGPA
Gender	Male	146	30,586	.17	.15	.14	.16	.24	.28	.20	.24	.32
	Female	159	42,652	.21	.16	.17	.17	.23	.29	.21	.26	.32
Racial / Ethnic Identity	American Indian or Alaska Native	2	35	.39	.05	-.04	.13	.43	.50	.54	.67	.69
	Asian	72	7408	.20	.18	.19	.20	.16	.28	.26	.31	.36
	Black or African American	84	5,124	.15	.14	.14	.15	.22	.30	.25	.30	.38
	Hispanic or Latino	106	17,121	.16	.15	.15	.16	.20	.27	.21	.25	.31
	Native Hawaiian or Other Pacific Islander	-	-	-	-	-	-	-	-	-	-	-
	Two or more races	58	2,066	.19	.13	.16	.17	.23	.33	.31	.39	.44
	White	158	38,486	.15	.15	.16	.17	.27	.30	.20	.23	.33
	No Response	26	583	.09	.18	.15	.18	.17	.35	.39	.46	.52
Best Language	English Only	165	58,948	.18	.16	.16	.18	.25	.30	.20	.24	.33
	English and Another	100	12,418	.18	.16	.16	.17	.21	.28	.22	.27	.33
	Another Language	24	1,004	.12	.17	.19	.18	.09	.24	.28	.33	.37
	Not Stated	3	52	.09	.12	.12	.20	.46	.52	.51	.60	.72
Highest Parental Education Level	No High School Diploma	51	4,535	.15	.13	.14	.14	.16	.25	.22	.27	.32
	High School Diploma	122	16,537	.17	.16	.16	.17	.23	.29	.22	.26	.34
	Associate Degree	90	4,760	.13	.14	.16	.16	.25	.32	.28	.32	.41
	Bachelor's Degree	147	25,726	.17	.15	.16	.17	.26	.30	.21	.25	.34
	Graduate Degree	145	19,258	.18	.16	.16	.18	.24	.30	.23	.27	.35
	Not Stated	25	635	.12	.07	.16	.11	.16	.29	.34	.40	.47
Overall		165	73,462	.18	.16	.17	.18	.24	.29	.20	.24	.32

Note: *n* = subgroup sample size, *k* = number of institutions. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

Table B 7: Raw Correlations of SAT Scores, SAT Essay Scores, and HSGPA with FSWCG by Student Subgroup

Student Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Gender	Male	121	23,816	.17	.14	.14	.16	.24	.28	.20	.24	.32
	Female	131	31,683	.21	.15	.17	.17	.23	.30	.21	.26	.33
Racial / Ethnic Identity	American Indian or Alaska Native	2	34	.44	.04	-.02	.13	.44	.54	.54	.69	.71
	Asian	59	5210	.20	.17	.18	.19	.16	.29	.27	.32	.36
	Black or African American	68	4,168	.13	.12	.13	.13	.23	.29	.24	.28	.38
	Hispanic or Latino	91	13,499	.16	.15	.15	.16	.20	.27	.21	.25	.32
	Native Hawaiian or Other Pacific Islander	-	-	-	-	-	-	-	-	-	-	-
	Two or more races	45	1,464	.20	.13	.16	.16	.25	.35	.31	.40	.46
	White	126	28,576	.14	.14	.16	.17	.27	.30	.21	.24	.34
	No Response	15	376	.07	.17	.09	.18	.15	.36	.36	.42	.49
Best Language	English Only	137	44,622	.17	.16	.16	.18	.26	.30	.21	.24	.33
	English and Another	84	9,553	.17	.15	.16	.17	.21	.28	.22	.27	.34
	Another Language	18	572	.15	.18	.20	.17	.14	.29	.31	.38	.44
	Not Stated	2	36	-.05	.06	.24	.21	.51	.52	.54	.59	.74
Highest Parental Education Level	No High School Diploma	48	3,708	.13	.12	.13	.13	.16	.25	.22	.27	.32
	High School Diploma	109	13,218	.17	.16	.16	.17	.23	.29	.23	.27	.35
	Associate Degree	75	3,713	.12	.13	.15	.16	.26	.32	.29	.33	.42
	Bachelor's Degree	123	19,399	.16	.15	.16	.18	.26	.30	.22	.26	.35
	Graduate Degree	115	13,469	.18	.16	.16	.18	.25	.30	.24	.28	.36
	Not Stated	19	499	.15	.07	.14	.11	.18	.30	.34	.41	.47
Overall		139	55,717	.18	.16	.16	.18	.25	.29	.20	.24	.32

Note: *n* = subgroup sample size, *k* = number of institutions. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

## Appendix C: Institutional Subgroups

Table C 1: Descriptive Statistics for Study Variables by Institutional Subgroups

Institutional Characteristic		<i>k</i>	<i>n</i>	SAT ERW		SAT Essay Reading		SAT Essay Analysis		SAT Essay Writing		SAT Essay Sum		HSGPA		FYGPA		EWGPA		FSWCG	
				<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Control	Private	89	37,711	625	82	6	1.1	5	1.4	6	1.1	16	3.3	3.73	0.45	3.23	0.66	3.36	0.75	3.31	0.79
	Public	82	145,749	595	80	5	1.1	4	1.4	5	1.1	15	3.2	3.68	0.46	3.01	0.81	3.21	0.96	3.15	0.99
Admittance Rate	Under 25%	20	14,871	679	68	6	1.0	5	1.2	6	0.9	18	2.8	3.99	0.29	3.36	0.53	3.49	0.56	3.46	0.53
	25% to 50%	30	43,030	625	75	6	1.1	5	1.3	6	1.0	16	3.1	3.84	0.37	3.13	0.66	3.31	0.75	3.27	0.76
	51% to 75%	73	86,157	589	78	5	1.1	4	1.4	5	1.1	15	3.2	3.64	0.46	3.02	0.82	3.26	0.94	3.20	0.96
	Over 75%	48	39,402	572	77	5	1.1	4	1.4	15	1.1	15	3.2	3.53	0.50	2.94	0.88	3.10	1.04	3.06	1.07
Undergraduate Enrollment Size	Small	67	16,385	593	86	5	1.1	4	1.4	5	1.1	15	3.3	3.63	0.49	3.09	0.77	3.16	0.95	3.11	1.01
	Medium	30	18,116	570	81	5	1.1	4	1.4	5	1.1	15	3.3	3.52	0.51	2.97	0.84	3.16	0.94	3.11	0.96
	Large	30	34,498	603	86	5	1.1	5	1.4	5	1.1	15	3.4	3.64	0.47	3.06	0.78	3.30	0.88	3.26	0.90
	Very Large	44	114,461	607	79	5	1.1	5	1.4	6	1.1	16	3.2	3.75	0.43	3.06	0.78	3.25	0.93	3.19	0.96
Overall		171	183,460	601	82	5	1.1	5	1.4	5	1.1	15	3.3	3.69	0.46	3.06	0.78	3.24	0.92	3.18	0.95

Note: *n* = subgroup sample size, *k* = number of institutions. Undergraduate enrollment size was categorized as follows: small 4,999 or less; medium: 5,000 to 9,999; large: 10,000 to 19,999; and very large: 20,000 or more.

Table C 2: Corrected Correlations of SAT Scores, SAT Essay Scores, and HSGPA with FYGPA by Institutional Subgroup

Institution Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Control	Private	89	37,711	.56	.42	.45	.45	.57	.65	.49	.58	.66
	Public	82	145,749	.50	.38	.40	.41	.53	.60	.44	.52	.60
Admittance Rate	Under 25%	20	14,871	.60	.43	.45	.46	.50	.64	.49	.61	.65
	25% to 50%	30	43,030	.55	.41	.44	.44	.53	.63	.48	.57	.64
	51% to 75%	73	86,157	.48	.38	.40	.41	.53	.59	.44	.51	.60
	Over 75%	48	39,402	.47	.37	.39	.40	.56	.60	.43	.50	.61
Undergraduate Enrollment Size	Small	67	16,385	.54	.42	.44	.45	.58	.65	.49	.58	.67
	Medium	30	18,116	.50	.39	.41	.42	.55	.61	.45	.53	.62
	Large	30	34,498	.51	.39	.41	.43	.55	.62	.45	.54	.63
	Very Large	44	114,461	.50	.38	.40	.41	.53	.60	.44	.52	.61
Overall		171	183,460	.51	.39	.41	.42	.54	.61	.45	.53	.62

Note: *n* = subgroup sample size, *k* = number of institutions. Undergraduate enrollment size was categorized as follows: small 4,999 or less; medium: 5,000 to 9,999; large: 10,000 to 19,999; and very large: 20,000 or more. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

Table C 3: Corrected Correlations of SAT Scores, SAT Essay Scores, and HSGPA with EWGPA by Institutional Subgroup

Institution Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Control	Private	83	16,604	.42	.33	.34	.36	.45	.51	.40	.46	.53
	Public	82	56,858	.33	.28	.30	.31	.39	.43	.33	.37	.45
Admittance Rate	Under 25%	19	4,154	.50	.38	.39	.40	.42	.55	.44	.53	.57
	25% to 50%	30	14,111	.42	.34	.35	.37	.41	.48	.39	.45	.50
	51% to 75%	69	36,863	.32	.27	.28	.30	.39	.43	.32	.36	.44
	Over 75%	47	18,334	.32	.29	.30	.32	.42	.44	.34	.37	.47
Undergraduate Enrollment Size	Small	61	6,647	.38	.31	.31	.33	.45	.51	.38	.44	.54
	Medium	30	9,968	.36	.31	.32	.33	.42	.46	.35	.40	.48
	Large	30	14,341	.36	.29	.32	.33	.41	.46	.35	.39	.48
	Very Large	44	42,506	.34	.29	.30	.32	.39	.43	.34	.38	.45
Overall		165	73,462	.35	.30	.31	.32	.40	.45	.35	.39	.47

Note: *n* = subgroup sample size, *k* = number of institutions. Undergraduate enrollment size was categorized as follows: small 4,999 or less; medium: 5,000 to 9,999; large: 10,000 to 19,999; and very large: 20,000 or more. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

Table C 4: Corrected Correlations of SAT Scores, SAT Essay Scores, and HSGPA with FSWCG by Institutional Subgroup

Institution Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Control	Private	60	10,916	.43	.34	.35	.37	.45	.53	.40	.47	.55
	Public	79	44,801	.33	.28	.29	.31	.39	.43	.33	.37	.45
Admittance Rate	Under 25%	11	2,321	.54	.38	.41	.40	.43	.59	.46	.57	.61
	25% to 50%	24	10,231	.43	.34	.35	.38	.40	.49	.40	.46	.51
	51% to 75%	64	27,699	.32	.28	.29	.30	.39	.43	.32	.36	.45
	Over 75%	40	15,466	.31	.28	.29	.31	.41	.44	.33	.36	.46
Undergraduate Enrollment Size	Small	42	4,574	.38	.30	.31	.33	.45	.50	.37	.44	.53
	Medium	27	8,068	.36	.31	.31	.33	.41	.46	.35	.40	.48
	Large	27	10,930	.35	.29	.31	.33	.41	.46	.35	.39	.48
	Very Large	43	32,145	.34	.29	.30	.32	.39	.44	.34	.38	.45
Overall		139	55,717	.35	.29	.31	.32	.40	.45	.35	.39	.47

Note: *n* = subgroup sample size, *k* = number of institutions. Undergraduate enrollment size was categorized as follows: small 4,999 or less; medium: 5,000 to 9,999; large: 10,000 to 19,999; and very large: 20,000 or more. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

Table C 5: Raw Correlations of SAT Scores, SAT Essay Scores, and HSGPA with FYGPA by Institutional Subgroup

Institution Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Control	Private	89	37,711	.32	.23	.24	.24	.35	.43	.28	.37	.46
	Public	82	145,749	.29	.20	.21	.22	.31	.40	.24	.32	.41
Admittance Rate	Under 25%	20	14,871	.37	.21	.21	.22	.21	.40	.25	.39	.42
	25% to 50%	30	43,030	.33	.21	.22	.22	.27	.40	.25	.36	.41
	51% to 75%	73	86,157	.26	.19	.21	.21	.32	.38	.24	.30	.40
	Over 75%	48	39,402	.30	.23	.25	.25	.42	.45	.28	.34	.47
Undergraduate Enrollment Size	Small	67	16,385	.35	.25	.27	.27	.41	.48	.31	.40	.51
	Medium	30	18,116	.29	.22	.24	.24	.37	.43	.27	.34	.45
	Large	30	34,498	.29	.21	.22	.22	.34	.41	.25	.33	.42
	Very Large	44	114,461	.29	.20	.21	.21	.30	.39	.24	.32	.40
Overall		171	183,460	.29	.21	.22	.22	.32	.40	.25	.33	.42

Note: *n* = subgroup sample size, *k* = number of institutions. Undergraduate enrollment size was categorized as follows: small 4,999 or less; medium: 5,000 to 9,999; large: 10,000 to 19,999; and very large: 20,000 or more. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

Table C 6: Raw Correlations of SAT Scores, SAT Essay Scores, and HSGPA with EWGPA by Institutional Subgroup

Institution Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Control	Private	83	16,604	.23	.18	.18	.21	.27	.33	.24	.29	.37
	Public	82	56,858	.17	.15	.16	.17	.23	.28	.19	.23	.31
Admittance Rate	Under 25%	19	4,154	.29	.19	.19	.20	.18	.33	.24	.34	.36
	25% to 50%	30	14,111	.24	.19	.20	.21	.22	.30	.23	.29	.33
	51% to 75%	69	36,863	.15	.13	.14	.15	.23	.27	.18	.21	.29
	Over 75%	47	18,334	.18	.18	.19	.21	.31	.33	.23	.25	.36
Undergraduate Enrollment Size	Small	61	6,647	.23	.19	.18	.21	.33	.38	.26	.32	.42
	Medium	30	9,968	.18	.16	.16	.18	.26	.30	.21	.24	.33
	Large	30	14,341	.19	.16	.18	.19	.25	.30	.21	.25	.33
	Very Large	44	42,506	.17	.16	.16	.17	.22	.27	.19	.23	.30
Overall		165	73,462	.18	.16	.17	.18	.24	.29	.20	.24	.32

Note: *n* = subgroup sample size, *k* = number of institutions. Undergraduate enrollment size was categorized as follows: small 4,999 or less; medium: 5,000 to 9,999; large: 10,000 to 19,999; and very large: 20,000 or more. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

Table C 7: Raw Correlations of SAT Scores, SAT Essay Scores, and HSGPA with FSWCG by Institutional Subgroup

Institution Characteristic		<i>k</i>	<i>n</i>	SAT ERW	SAT Essay Reading	SAT Essay Analysis	SAT Essay Writing	HSGPA	SAT ERW, HSGPA	SAT Essay	SAT Essay, SAT ERW	SAT Essay, SAT ERW, HSGPA
Control	Private	60	10,916	.24	.18	.19	.21	.28	.35	.24	.31	.38
	Public	79	44,801	.16	.15	.16	.17	.24	.28	.19	.23	.31
Admittance Rate	Under 25%	11	2,321	.33	.19	.21	.20	.18	.36	.25	.37	.39
	25% to 50%	24	10,231	.25	.19	.19	.21	.21	.30	.23	.29	.33
	51% to 75%	64	27,699	.14	.14	.14	.15	.23	.27	.18	.21	.30
	Over 75%	40	15,466	.17	.17	.18	.20	.31	.32	.22	.25	.35
Undergraduate Enrollment Size	Small	42	4,574	.23	.17	.17	.20	.34	.38	.25	.31	.42
	Medium	27	8,068	.18	.16	.17	.18	.26	.30	.21	.25	.33
	Large	27	10,930	.18	.15	.17	.18	.25	.30	.21	.25	.33
	Very Large	43	32,145	.17	.15	.16	.17	.23	.28	.19	.23	.31
Overall		139	55,717	.18	.16	.16	.18	.25	.29	.20	.24	.32

Note: *n* = subgroup sample size, *k* = number of institutions. Undergraduate enrollment size was categorized as follows: small 4,999 or less; medium: 5,000 to 9,999; large: 10,000 to 19,999; and very large: 20,000 or more. Correlations are only calculated at institutions with at least 15 students in a subgroup. "SAT Essay" listed on its own or paired with HSGPA and/or SAT ERW refers to the multiple correlation of all three SAT Essay scores together.

## Appendix D

Table D 1: Probability of Earning an EWGPA of 2.50 or Higher

SAT ERW Score	SAT Essay Sum Score						
	6	9	12	15	18	21	24
200	.44	.52	.60	.68	.75	.81	.85
300	.52	.60	.68	.75	.81	.85	.89
400	.60	.68	.75	.81	.85	.89	.92
500	.68	.75	.81	.85	.89	.92	.94
600	.75	.81	.85	.89	.92	.94	.96
700	.81	.85	.89	.92	.94	.96	.97
800	.85	.89	.92	.94	.96	.97	.98

Table D 2: Probability of Earning a FSWCG of 2.50 or Higher

SAT ERW Score	SAT Essay Sum score						
	6	9	12	15	18	21	24
200	.42	.50	.59	.67	.74	.81	.85
300	.50	.58	.67	.74	.80	.85	.89
400	.58	.66	.73	.80	.85	.89	.92
500	.65	.73	.79	.84	.88	.92	.94
600	.72	.79	.84	.88	.91	.94	.95
700	.78	.83	.88	.91	.94	.95	.97
800	.83	.87	.91	.93	.95	.97	.98

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