Incorporating SAT® Writing into Admission and Placement Decisions

Emily Shaw
Associate Research Scientist, The College Board, NY

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Outline of Presentation

• History & Background Info on SAT Writing
• Recent National Validity Information on SAT Writing
• Incorporating SAT Writing into Admissions – Paul Johnson, Rutgers University
• Incorporating SAT Writing into Placement – Kathleen O’Connor, Lasell College
• Conducting Local Admission and/or Placement Validity Studies
• Questions
What is the SAT writing section?

• Implemented in March 2005.
• Lasts one hour, and is scored on a scale of 200 to 800.
• Multiple choice questions test a student’s ability to improve sentences and identify sentence errors
  • This section accounts for 70% of the writing score
  • Students have 35 minutes to answer 49 multiple choice questions
• The essay tests a student’s ability to articulate a coherent argument, supporting a point of view on an issue specified on the test
  • The essay accounts for 30% of the writing score
  • Students have 25 minutes to write the essay
And how is the test performing?...

“How do you want it—the crystal mumbo-jumbo or statistical probability?”
National SAT Validity Research

• Examines the relationship of SAT Writing with important college outcomes, including:
  • SAT Writing and FYGPA
  • SAT Writing and FY English grades
  • SAT Writing and Retention
  • SAT Writing and cumulative GPA

• Studies can be found at: www.collegeboard.com/research
Correlation

• Essentially, a correlation coefficient is a number between -1 and 1 which measures the degree to which two variables are linearly related.
  • Strength (absolute magnitude) and direction (negative/positive)

![Correlation Graph](image)

\[ r = 0.37 \]
A general rule of thumb for interpreting correlation coefficients is offered by Cohen (1988):

- small correlation has an absolute value of approximately 0.1
- medium correlation has an absolute value of approximately 0.3
- strong correlation has an absolute value of approximately 0.5 or higher
SAT Validity Study results - snapshot

• Admission Validity Study

SAMPLE (2008 entering cohort)

129 colleges participating in Validity Study (N = 246,652)

• Schools provided first year performance data for Fall 2008 cohort through the Admitted Class Evaluation Service™ (ACES™) portal

Restrict sample to students who completed the new SAT, submitted self reported HSGPA, and had a valid FYGPA (N=173,963)
• SAT Writing has the highest correlation with FYGPA among the three individual SAT sections (Adj. $r = 0.52$).
  • SAT CR (Adj. $r = 0.48$); SAT M (Adj. $r = 0.48$)

• As expected, the best combination of predictors of FYGPA is HSGPA and SAT scores (Adj. $r = 0.63$), reinforcing the recommendation that colleges use both HSGPA and SAT scores to make the best predictions of student success.
What does a validity coefficient of .53 mean?
Admission Validity Results (2 of 2)

- The increment in validity attributable to the Writing section over and above the CR and M sections is 0.02. When HSGPA is also considered, the increment in validity attributable to the Writing section is 0.01.

Let’s look at this graphically....
Contribution of SAT Writing to Predicting Success for Students

Lower Achievers: HSGPA < 3.3 and SAT CR+M < 1000

- 400 or below: 18.9% FYGPA 3.0 or above, 4.7% FYGPA 3.5 or above
- 410-500: 23.6% FYGPA 3.0 or above, 5% FYGPA 3.5 or above
- 510-600: 31.3% FYGPA 3.0 or above, 7.5% FYGPA 3.5 or above
- 610 and higher: 31.5% FYGPA 3.0 or above, 9.3% FYGPA 3.5 or above
Contribution of SAT Writing to Predicting Success for Students
Average Achievers: HSGPA between 3.3-3.7 and SAT CR+M between 1010 and 1200

| SAT Writing Score | Percent of Students
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>400 or below</td>
<td>37.8</td>
</tr>
<tr>
<td>410-500</td>
<td>42.4</td>
</tr>
<tr>
<td>510-600</td>
<td>52.6</td>
</tr>
<tr>
<td>610 and higher</td>
<td>62.7</td>
</tr>
</tbody>
</table>

- % FYGPA 3.0 or above
- % FYGPA 3.5 or above

CollegeBoard
inspiring minds
Contribution of SAT Writing to Predicting Success for Students
High Achievers: HSGPA > 3.7 and SAT CR+M > 1200

<table>
<thead>
<tr>
<th>SAT Writing Score</th>
<th>% FYGPA 3.0 or above</th>
<th>% FYGPA 3.5 or above</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 or below</td>
<td>65.4</td>
<td>33.2</td>
</tr>
<tr>
<td>510-600</td>
<td>76.7</td>
<td>42.5</td>
</tr>
<tr>
<td>610 and higher</td>
<td>87.2</td>
<td>59.1</td>
</tr>
</tbody>
</table>
Relationship between SAT Critical Reading and Writing and 1st Year English Course Grades

The Relationship between SAT-CR & W Scores and Grades Earned in 1st Year English Courses

SAT Score Band

- 200 – 290
  - SAT-CR: 2.51
  - SAT-W: 2.62

- 300 – 390
  - SAT-CR: 2.68
  - SAT-W: 2.57

- 400 – 490
  - SAT-CR: 2.89
  - SAT-W: 2.88

- 500 – 590
  - SAT-CR: 3.13
  - SAT-W: 3.15

- 600 – 690
  - SAT-CR: 3.32
  - SAT-W: 3.37

- 700 – 800
  - SAT-CR: 3.51
  - SAT-W: 3.56
Relationship between SAT CR & W and Earning a B or Higher in 1st Year English Course

Percentage of Students Earning a B or Higher in 1st Year English Courses by SAT-CR & W Scores

<table>
<thead>
<tr>
<th>SAT Score Band</th>
<th>SAT-CR</th>
<th>SAT-W</th>
</tr>
</thead>
<tbody>
<tr>
<td>200–290</td>
<td>47.8</td>
<td>51.2</td>
</tr>
<tr>
<td>300–390</td>
<td>56.7</td>
<td>52.5</td>
</tr>
<tr>
<td>400–490</td>
<td>66.4</td>
<td>66.1</td>
</tr>
<tr>
<td>500–590</td>
<td>76.9</td>
<td>77.8</td>
</tr>
<tr>
<td>600–690</td>
<td>84.6</td>
<td>86.2</td>
</tr>
<tr>
<td>700–800</td>
<td>90.5</td>
<td>92.3</td>
</tr>
</tbody>
</table>
SAT Writing and Retention

Contribution of SAT Writing in the Prediction of Retention to Second Year Controlling for HSGPA and SAT Math + Critical Reading

HSGPA and SAT-M & CR student groups

- Low Achievers
- Moderate/Average Achievers
- High Achievers

- SAT-W of 500 and below
- SAT-W between 510 - 600
- SAT-W of 610 and higher
The SAT Writing section remains quite predictive of cumulative GPA at the end of the third-year of college. (adj. $r = 0.56$)

<table>
<thead>
<tr>
<th>Predictor(s)</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HSGPA</td>
<td>0.57</td>
</tr>
<tr>
<td>2. SAT-CR</td>
<td>0.52</td>
</tr>
<tr>
<td>3. SAT-M</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>4. SAT-W</strong></td>
<td><strong>0.56</strong></td>
</tr>
<tr>
<td>5. SAT-M, SAT-CR</td>
<td>0.55</td>
</tr>
<tr>
<td>6. HSGPA, SAT-M, SAT-CR</td>
<td>0.65</td>
</tr>
<tr>
<td>7. SAT-CR, SAT-M, SAT-W</td>
<td>0.58</td>
</tr>
<tr>
<td>8. HSGPA, SAT-CR, SAT-M, SAT-W</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Note. N = number of students = 63,736. Pooled within-institution, restriction of range corrected correlations are presented; raw correlations are shown in parentheses.
Next...

Incorporating the SAT into Admissions at Rutgers University
Incorporating the SAT into English placement decisions at Lasell College
Conducting a Local Admission and/or Placement Validity Study on SAT Writing

Admitted Class Evaluation Service (ACES)

- The Admitted Class Evaluation Service (ACES) is a free online service that predicts how admitted students will perform at a college or university generally (admission validity) and how successful students will be in specific classes (placement validity).

http://professionals.collegeboard.com/higher-ed/validity/aces
The primary purpose of an admission validity study is to validate measures used in admission decisions.

Can determine how well admission criteria work alone and in combination with other predictors, and the most effective weighting for the predictors.

- Success (the criterion) may be measured by college GPA
- Relevant predictors may be
  - SAT scores – Critical Reading, Math, or Writing
  - High school GPA, or Class Rank
  - Interview scores, and
  - Other information
Overview of ACES Process

• The institutional contact/submitter will:

1. Click link on ACES web site for a new ACES study request: 
   https://cbweb1s.collegeboard.org/aces/html/newrvs.html

2. Enter contact info (name, email, position, institution, etc.)

3. Design study (choose predictors, subgroups, etc.)

4. Receive automatically e-mailed user account, password, and request number from ACES

5. Login to submit data at this site: 
   https://cbweb1s.collegeboard.org/aces/html/submit1.html

6. Record all variable locations, indicate value labels, etc.

7. Upload data file(s)

8. ACES reports are returned to institutions 25 - 35 business days after the receipt of data.
ACES Admission Validity Report for Sample One University

Enter Class of Fall 2007

Your College Board Validity Report is designed to assist your institution in validating your admission decisions. This report provides a non-technical discussion of important findings.

Admitted Class Evaluation Service™
WWW.COLLEGEBOARD.COM

Table of Contents

Section | Page |
---|---|
1 | Description of the Study Design for Sample One University |
2 | Evaluating individual admission measures |
4 | Evaluating combined admission measures |
6 | Using the predicted First-Year GPAs for future students |
8 | Using the predicted First-Year GPAs for current students to identify students possibly at risk for not completing their degree at Sample One University |
10 | Evaluating predictions for specific groups of students |
11 | Evaluating combined admission measures for different groups of students as impacted by Sample One University |

Appendix

A | Prediction equation – The predicted First-Year GPA is useful in summarizing the likelihood of success for applicants and monitoring performance of enrolled students |
B | Statistical summaries of study variables – detailed information about the performance of the 2007 entering class at Sample One University |
C | List of IDs for students possibly at risk for not completing their degree at Sample One University |
Section 1: Evaluating individual admission measures

This section summarizes the predictive strength of the individual admission measures in the study. The second analysis may include results for predictors, such as SAT Subject Tests, that institutions did not explicitly choose to study but were present in their students' records.

### Individual admission measures in your study

<table>
<thead>
<tr>
<th>Measure</th>
<th>Predictive Strength (correlation)</th>
</tr>
</thead>
<tbody>
<tr>
<td># Honors</td>
<td>0.02</td>
</tr>
<tr>
<td>SAT Critical Reading</td>
<td>0.42</td>
</tr>
<tr>
<td>SAT Writing</td>
<td>0.42</td>
</tr>
<tr>
<td>Moderate Predictors</td>
<td>0.33</td>
</tr>
<tr>
<td>SAT Math</td>
<td>0.35</td>
</tr>
<tr>
<td># AP Courses</td>
<td>0.23</td>
</tr>
<tr>
<td>SAT Verbal</td>
<td>0.17</td>
</tr>
<tr>
<td>SAT Subject Tests</td>
<td>0.06</td>
</tr>
<tr>
<td># Honors or AP courses</td>
<td>0.23</td>
</tr>
</tbody>
</table>

### Other admission measures available

<table>
<thead>
<tr>
<th>Measure</th>
<th>Predictive Strength (correlation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT Subject Mult Level 1</td>
<td>0.45</td>
</tr>
<tr>
<td>SAT Subject U.S. History</td>
<td>0.21</td>
</tr>
<tr>
<td>SAT Subject Literature</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Notes:

- All individual measures have moderate to strong correlations with First-Year GPA, except for Honors and AP courses measures. The measures showing moderate to strong correlations with First-Year GPA are good candidates for inclusion in the predicted First-Year GPA calculations in Section 2.
Section 2: Evaluating combined admission measures

This section combines the admission measures that were evaluated individually in Section 1 of the report to find the best prediction of success. Because combinations of predictors tend to be more reliable and allow students to shape different strengths, it is important to consider all of the information available for each student in making an admission decision. Appendix A presents the equations needed to combine the admission measures into a single predicted First-Year GPA. Several equations are given so that you can use as much of the information provided in your report to decide which combination might be the best for each student.

The tables below display the multiple correlations between combinations of admission measures and the criterion of success you choose for this study. The bars at the right of each table represent the predictive strength (multiple correlation) for each combination.

The first table below presents SAT combinations. The first line of each table shows the multiple correlation for the predicted First-Year GPA using only SAT scores.

SAT combinations

<table>
<thead>
<tr>
<th>Critical Reading</th>
<th>Math</th>
<th>Writing</th>
<th>HS Rank</th>
<th>Ad Factors</th>
<th>N</th>
<th>Predictive Strength (multiple correlation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>27</td>
<td>24</td>
<td>48</td>
<td>36</td>
<td>38</td>
<td>0.66</td>
</tr>
<tr>
<td>26</td>
<td>27</td>
<td>24</td>
<td>48</td>
<td>36</td>
<td>38</td>
<td>0.66</td>
</tr>
</tbody>
</table>

SAT & SAT Subject Test combinations

<table>
<thead>
<tr>
<th>Critical Reading</th>
<th>Math</th>
<th>Writing</th>
<th>HS Rank</th>
<th>Ad Factors</th>
<th>N</th>
<th>Predictive Strength (multiple correlation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>27</td>
<td>24</td>
<td>48</td>
<td>36</td>
<td>38</td>
<td>0.73</td>
</tr>
<tr>
<td>26</td>
<td>27</td>
<td>24</td>
<td>48</td>
<td>36</td>
<td>38</td>
<td>0.73</td>
</tr>
</tbody>
</table>

Notes:
- The multiple correlation calculated by using SAT Math, SAT Critical Reading, and SAT Writing was 0.44, which represents a strong correlation. The numbers in the bars to the left of each bar show the relative contribution of each predictor (in percentage terms) for each prediction equation. SAT Critical Reading contributes 36 percent, SAT Math contributes 31 percent, and SAT Writing contributes 33 percent when using the SAT in predicting First-Year GPA.
- The second line of the SAT combinations table adds HS Rank to the SAT information. Of the SAT and HS Rank, HS Rank makes the greatest contribution toward predicting First-Year GPA. After adding HS Rank, the multiple correlation increased from 0.44 to 0.73.
ACES Placement Validity Studies

• ACES Placement Validity Studies give you the information you need to confirm or improve your current course placement policies.

• Predictive placement validity studies evaluate student scores on the SAT, for example, to predict performance in a particular course.

• The study design is used to determine the score level on the test at which students should be placed into a course. This cutoff score can then be applied to future students who have taken the test in order to place into the course.
ACES Placement Validity Study

• The predictive validity study provides two probability tables for cut scores, among other information:
  • For a course grade of B or higher
  • For a course grade of C or higher
Cut Scores Associated with Predicted Probability of Success Criterion: Final Course Grade of C or Higher in Eng100 Using SAT Scores

<table>
<thead>
<tr>
<th>Probability of Success</th>
<th>SAT Critical Reading Only</th>
<th>SAT Writing Only</th>
<th>Composite Predictor</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.95</td>
<td>711</td>
<td>750</td>
<td>2.54</td>
</tr>
<tr>
<td>0.90</td>
<td>692</td>
<td>730</td>
<td>2.20</td>
</tr>
<tr>
<td>0.85</td>
<td>621</td>
<td>649</td>
<td>1.73</td>
</tr>
<tr>
<td>0.80</td>
<td>556</td>
<td>579</td>
<td>1.39</td>
</tr>
<tr>
<td>0.75</td>
<td>492</td>
<td>512</td>
<td>0.65</td>
</tr>
<tr>
<td>0.70</td>
<td>443</td>
<td>476</td>
<td>0.62</td>
</tr>
<tr>
<td>0.65</td>
<td>390</td>
<td>416</td>
<td>0.41</td>
</tr>
<tr>
<td>0.60</td>
<td>345</td>
<td>379</td>
<td>0.20</td>
</tr>
<tr>
<td>0.55</td>
<td>300</td>
<td>327</td>
<td>0.00</td>
</tr>
<tr>
<td>0.50</td>
<td>256</td>
<td>268</td>
<td>-0.20</td>
</tr>
<tr>
<td>0.45</td>
<td>211</td>
<td>227</td>
<td>-0.41</td>
</tr>
<tr>
<td>0.40</td>
<td></td>
<td></td>
<td>-0.62</td>
</tr>
<tr>
<td>0.35</td>
<td></td>
<td></td>
<td>-0.85</td>
</tr>
<tr>
<td>0.30</td>
<td></td>
<td></td>
<td>-0.85</td>
</tr>
<tr>
<td>0.25</td>
<td></td>
<td></td>
<td>-1.10</td>
</tr>
<tr>
<td>0.20</td>
<td></td>
<td></td>
<td>-1.39</td>
</tr>
<tr>
<td>0.15</td>
<td></td>
<td></td>
<td>-1.73</td>
</tr>
<tr>
<td>0.10</td>
<td></td>
<td></td>
<td>-2.20</td>
</tr>
<tr>
<td>0.05</td>
<td></td>
<td></td>
<td>-2.94</td>
</tr>
</tbody>
</table>

The following model(s) can be used to calculate the composite predictor shown in the table above.

Model Number 1 = -4.23677 + (0.00565) × SAT Critical Reading + (0.00625) × SAT Writing
Individual predictors examined (SAT CR alone, SAT W alone)

Composite predictor examined (SAT CR and W together)

---

<table>
<thead>
<tr>
<th>Predictor Variable(s)</th>
<th>Study Sample</th>
<th>Complete Data Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Logistic Biserial Correlation*</td>
</tr>
<tr>
<td>Individual Predictors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT Critical Reading</td>
<td>492</td>
<td>0.18</td>
</tr>
<tr>
<td>SAT Writing</td>
<td>492</td>
<td>0.29</td>
</tr>
<tr>
<td>Composite Predictors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model Number 1</td>
<td>492</td>
<td>0.47</td>
</tr>
</tbody>
</table>

*The logistic biserial correlation is a measure of the strength of association. It is related to a biserial correlation, but has been modified to be consistent with logistic regression and adapted to single and multiple predictors.
It is designed to serve as a general reference for validity and includes information about validity beyond what is specifically applicable to ACES.

It includes specific information about the types of validity studies and their design that are available through the ACES system and helps interpret ACES study results.
The End

• Questions?

• Thank you for joining us today!

    Paul Johnson
    Rutgers University, NJ
    Johnson@ugadm.rutgers.edu

    Kathleen O’Connor
    Lasell College, MA
    KOConnor@Lasell.edu

    Emily Shaw
    The College Board, NY
    eshaw@collegeboard.org

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