



**Research Report**

**No. 2006-2**

# The College Board SAT<sup>®</sup> Writing Validation Study: An Assessment of Predictive and Incremental Validity

**Dwayne Norris, Scott Oppler, Daniel Kuang,  
Rachel Day, and Kimberly Adams**

The College Board  
SAT<sup>®</sup> Writing  
Validation Study:  
An Assessment  
of Predictive and  
Incremental Validity

**Dwayne Norris, Scott Oppler, Daniel Kuang,  
Rachel Day, and Kimberly Adams**

**The College Board, New York, 2006**

---

Dwayne Norris is principal research scientist at American Institutes for Research (AIR).

Scott Oppler is chief methodologist at AIR.

Daniel Kuang is a research scientist at AIR.

Rachel Day is a research scientist at AIR.

Kimberly Adams is senior research scientist at AIR.

---

Researchers are encouraged to freely express their professional judgment. Therefore, points of view or opinions stated in College Board Reports do not necessarily represent official College Board position or policy.

---

*The College Board: Connecting Students to College Success*

The College Board is a not-for-profit membership association whose mission is to connect students to college success and opportunity. Founded in 1900, the association is composed of more than 5,000 schools, colleges, universities, and other educational organizations. Each year, the College Board serves seven million students and their parents, 23,000 high schools, and 3,500 colleges through major programs and services in college admissions, guidance, assessment, financial aid, enrollment, and teaching and learning. Among its best-known programs are the SAT®, the PSAT/NMSQT®, and the Advanced Placement Program® (AP®). The College Board is committed to the principles of excellence and equity, and that commitment is embodied in all of its programs, services, activities, and concerns.

For further information, visit [www.collegeboard.com](http://www.collegeboard.com).

Additional copies of this report (item #060481782) may be obtained from College Board Publications, Box 886, New York, NY 10101-0886, 800 323-7155. The price is \$15. Please include \$4 for postage and handling.

© 2006 The College Board. All rights reserved. College Board, Advanced Placement Program, AP, SAT, and the acorn logo are registered trademarks of the College Board. connect to college success and SAT Reasoning Test are trademarks owned by the College Board. PSAT/NMSQT is a registered trademark of the College Board and National Merit Scholarship Corporation. All other products and services may be trademarks of their respective owners. Visit the College Board on the Web: [www.collegeboard.com](http://www.collegeboard.com).

Printed in the United States of America.

## Acknowledgments

The authors wish to express their appreciation to:

Wayne Camara, Amy Schmidt, and Jennifer Kobrin of the College Board for their overall guidance and assistance in conducting this study; Ying Zhou of the College Board for assistance with securing and recovering participant data from the College Board database; Stephanie Weiss of AIR for handling the bulk of the day-to-day study logistics; Brian Lyons of AIR for preparing the data for analysis; Aida Gomez of AIR for report production assistance; and all of the other AIR staff that assisted in the 13 data collection sessions.

The authors especially wish to express their sincere appreciation to the 13 participating institutions, their designated Study Coordinators, and to other assistants who helped support this study. The participating institutions included Whitman College, United States Coast Guard Academy, Texas Christian University, Dickinson College, Colorado School of Mines, Howard University, Indiana University-Purdue University Indianapolis, Ohio State University, and five other institutions.

---

# Contents

<i>Abstract</i> . . . . .	1	<i>Missing Data</i> . . . . .	8
<i>Introduction</i> . . . . .	1	<i>Descriptive Statistics</i> . . . . .	9
<i>Methodology</i> . . . . .	2	<i>Individual Validities</i> . . . . .	9
<i>Participants</i> . . . . .	2	<i>Incremental Validities</i> . . . . .	11
<i>Participating Institutions</i> . . . . .	2	<i>Discussion</i> . . . . .	12
<i>Study Coordinators</i> . . . . .	2	<i>Study Limitations</i> . . . . .	12
<i>Student Participants</i> . . . . .	2	<i>Conclusion</i> . . . . .	13
<i>Materials</i> . . . . .	4	<i>Recommendations for Future Research</i> . . . . .	13
<i>Data Collection</i> . . . . .	4	<i>References</i> . . . . .	13
<i>Staff Training</i> . . . . .	4	<i>Appendix</i> . . . . .	14
<i>Scheduling</i> . . . . .	4	<i>Tables</i>	
<i>Motivation Strategy</i> . . . . .	5	1. General Descriptive Information of Each Institution . . . . .	2
<i>Testing Session Procedures</i> . . . . .	5	2. Number of Students by Institution with SAT® Writing Scores and Archived College Board Data . . . . .	3
<i>Variables</i> . . . . .	5	3. Sample and Population Percentages for Gender by Institution . . . . .	3
<i>Analytic Approach</i> . . . . .	6	4. Sample and Population Percentages for Ethnicity by Institution . . . . .	4
<i>Results</i> . . . . .	7	5. Variables of Interest . . . . .	6
<i>Participant Motivation</i> . . . . .	7	6. Number of Participants with Outlier SAT Writing Scores When Compared to Predicted SAT Writing Scores . . . . .	8
		7. Number of Students with Complete Predictor and Criterion Data by Institution . . . . .	8

---

8. Descriptive Statistics for All Predictors, First-Year College GPA, and English Composition GPA Across Institutions . . . . .	9	A7. Descriptive Statistics for Sample with Complete Data Across All Predictors and English Composition GPA . . . . .	18
9. Weighted-Average Correlations for All Predictors with First-Year College GPA and English Composition GPA . . . . .	9	A8. SAT Mathematics and Verbal Scores for Sample and Population . . . . .	19
10. Summary of Hierarchical Regression Models . . .	10	A9. Corrected and Uncorrected Correlations for All Predictors with First-Year College GPA and English Composition GPA by Institution . . . . .	19
11. Weighted-Average Incremental Validity Results Across Institutions for Predicting First-Year College GPA (Model A) . . . . .	10	A10. Matrix of Corrected and Uncorrected Correlations for All Predictors and First-Year College GPA Criterion by Institution . . . . .	21
12. Weighted-Average Incremental Validity Results Across Institutions for Predicting First-Year College GPA (Model B) . . . . .	10	A11. Matrix of Corrected and Uncorrected Correlations for All Predictors and English Composition GPA Criterion by Institution . . . . .	24
13. Weighted-Average Incremental Validity Results Across Institutions for Predicting First-Year College GPA (Model C) . . . . .	10	A12. Weighted-Average Corrected and Uncorrected Correlation Matrix for All Predictors and First-Year College GPA Across Institutions . . . . .	26
14. Weighted-Average Incremental Validity Results Across Institutions for Predicting First-Year College GPA (Model D) . . . . .	11	A13. Weighted-Average Corrected and Uncorrected Correlation Matrix for All Predictors and English Composition GPA Across Institutions . . . . .	27
15. Weighted-Average Incremental Validity Results Across Institutions for Predicting First-Year College GPA (Model E) . . . . .	12	A14. Incremental Validity Results for Predicting First-Year College GPA by Institution: Model A . . . . .	27
A1. Gender Percentages for the First-Year College GPA and English Composition GPA Criterion (Sample and Population) . . . . .	14	A15. Incremental Validity Results for Predicting First-Year College GPA by Institution: Model B . . . . .	28
A2. Ethnicity Percentages by Institution for the First-Year College GPA Criterion (Sample and Population) . . . . .	15	A16. Incremental Validity Results for Predicting First-Year College GPA by Institution: Model C . . . . .	29
A3. Ethnicity Percentages by Institution for the English Composition GPA Criterion (Sample and Population) . . . . .	15	A17. Incremental Validity Results for Predicting First-Year College GPA by Institution: Model D . . . . .	30
A4. English Courses Used to Create English Composition GPA . . . . .	16	A18. Incremental Validity Results for Predicting First-Year College GPA by Institution: Model E . . . . .	31
A5. Conversion Charts Provided by Each Institution to Convert First-Year Letter Grades to Numerical GPA Scale . . . . .	16		
A6. Descriptive Statistics for Sample with Complete Data Across All Predictors and First-Year College GPA . . . . .	17		

---

# Abstract

This study assessed the predictive and incremental validity of a prototype version of the forthcoming SAT® writing section that was administered to a sample of incoming students at 13 colleges and universities. For these participants, SAT scores, high school GPA, and first-year grades also were obtained. Using these data, analyses were conducted to assess the validity of SAT writing scores for predicting first-year college GPA and GPA in English composition courses. Also assessed was the incremental validity of SAT writing. Consistent with the results of prior research, the weighted-average correlation between SAT writing scores and first-year college GPA was 0.46 when corrected for range restriction. Furthermore, the SAT writing scores resulted in a weighted-average increment of 0.01 to the predictive validity already provided by SAT verbal and math scores and high school GPA in predicting first-year college GPA. Also consistent with previous research, the weighted-average correlation between SAT writing scores and GPA in English composition was 0.32 when corrected for range restriction. In light of the study constraints, these results are encouraging and suggest that the new SAT writing section should be a useful addition to the SAT in terms of predicting academic performance during the first year in college.

## Introduction

The SAT Reasoning Test™ (formerly known as the SAT I) is a widely accepted test used for making college admissions decisions. In March 2005, the SAT was revised to be decidedly different from former versions; most notably, a writing section was added. The new SAT writing section is 60 minutes in length and includes a 25-minute multiple-choice section, a 25-minute essay, and a 10-minute multiple-choice section. The multiple-choice sections consist of 49 items of three types: identifying sentence errors, improving sentences, and improving paragraphs. The scores on the SAT writing section range from 200 to 800. Two subscores are reported on the writing section: a multiple-choice subscore that ranges from 20 to 80 and an essay subscore that ranges from 2 to 12.

The rationale for adding a writing section to the SAT is rather straightforward. First, it is anticipated that the SAT writing score will improve upon the predictive validity of the SAT. Indeed, prior research provides

support for a writing section as predictive of first-year college grade point average (Bridgeman, 1991; College Board, 1999; Hale, Bridgeman, Lewis, Pollack, and Wang, 1992), college English course grades (Bridgeman, Hale, Lewis, Pollack, and Wang, 1992), and college writing performance (Breland, Kubota, and Bonner, 1999). Second, adding a writing section to the SAT sends a strong signal to high schools and students about the importance of writing skills for future success in college and beyond.

This report describes a validation study that was conducted to provide empirical evidence of the predictive validity of a prototype version of the SAT writing section.<sup>1</sup> Specifically, a validity study was conducted to achieve two objectives. The first objective was to investigate the validity of the SAT writing section for making college admissions decisions. The second objective was to investigate the validity of the prototype for potentially making English composition placement decisions.

For the first objective, the study estimated the validity of SAT writing scores for predicting first-year college grade point average (FGPA) and the incremental validity of SAT writing scores for predicting FGPA over the level of prediction already attributed to scores on the current (operational) SAT mathematics and verbal scores and high school GPA (HSGPA). The incremental validity models allowed the assessment of the SAT writing section in relationship to the predictors commonly used by many institutions for admissions decision making. For the second objective, the study estimated the validity of scores on the SAT writing section for predicting GPA in English composition courses (ECGPA).

To conduct this study, the prototype version of the new SAT writing section was administered to samples of incoming freshmen at 13 colleges and universities<sup>2</sup> around the United States during summer orientation or in the initial weeks of the fall 2003 semester. For all student participants, the College Board provided operational SAT scores and other relevant information (e.g., self-reported high school GPA). At the completion of the spring 2004 semester, information regarding the academic performance of student participants during their freshman year was obtained (i.e., FGPA and grades in English composition courses). Using these data, validity analyses were conducted to provide empirical evidence to address the two study objectives. In the following sections of this report, the study's methodology, analyses, and findings are described.

<sup>1</sup> The prototype version of the SAT writing section used in this study included a 25-minute multiple-choice section consisting of 37 items, and a 25-minute essay.

<sup>2</sup> In the remainder of this research report, the term *institution* will be used to refer collectively to the colleges and universities that participated in this validity study.

# Methodology

## Participants

### Participating Institutions

The study began with the College Board's recruitment of colleges and universities to participate in the study. The goal was to recruit approximately 12 to 16 institutions that were fairly representative in terms of geographic location, size, selectivity, and type of institution (i.e., private or public) of the population of U.S. institutions using the SAT in their admissions process. Although 16 institutions originally agreed to participate in the study, 2 institutions withdrew because of complications in completing their internal review board process, and 1 institution never responded to subsequent inquiries after it initially agreed to participate. Table 1 describes the composition of the remaining 13 institutions in terms of the type of institution, selectivity, size of first-year class, and geographic region.

### Study Coordinators

Each participating institution was asked to provide a staff person to serve as a campus Study Coordinator.<sup>3</sup> The Study Coordinator's primary responsibilities included recruiting student participants, distributing informed-consent and waiver forms authorizing release of student records, arranging and proctoring the administration of the SAT writing section, securing study clearances

from their respective internal review boards, and acquiring criterion data (i.e., FGPA and course grades). The Coordinator also assisted with the receipt, security, inventory, and return of all testing materials.

### Student Participants

While recruiting schools to participate, the College Board provided instructions about the desired characteristics of student participants.<sup>4</sup> These instructions included the following requests:

1. Institutions were asked to provide a minimum of 200 and a maximum of 400 incoming students to participate in the study.
2. Each participating institution was asked to screen participants in the study to ensure that they had official SAT scores on record at the institution.
3. Each participating institution was asked to ensure that the sample of students selected to participate in the study was reasonably representative of freshmen at that institution in terms of gender, ethnicity, and ability level/academic preparation.

Additionally, institutions had to agree to complete testing prior to September 30, 2003.

The specific method used at each school to recruit students is unknown. What is known, however, is that the recruitment methods did vary by institution. For example, from communications with Study Coordinators, it is known that several institutions sent information about the study to students as part of their summer orientation packet prior to their arrival on campus. Other institutions already had their orientation schedules planned and therefore did not recruit students until after they had arrived at orientation.

Table 2 presents the number of student participants that each institution originally agreed to provide for the study, the actual number of participants who registered to complete the SAT writing section at each institution, and the number of participants who were identifiable in the College Board SAT database (i.e., participant sample). As this table shows, 11 of the 13 participating institutions were unable to recruit enough students to meet the original target sample sizes for the study. Thus, even though the original plan was to have 3,600 student participants, only 1,953 students actually registered to participate in the study.

Although the specific reasons for the lower than expected participation rate are not known, there are several reasons that likely contributed to the level of participation. First, only two institutions made attendance at the administration of the SAT writing

**Table 1**

General Descriptive Information of Each Institution

<i>Institution</i>	<i>Type of School</i>	<i>Selectivity<sup>a</sup></i>	<i>First-Year Class Size</i>	<i>Geographic Region<sup>b</sup></i>
A	Public	0.77	1,000–2,999	Midwest
B	Public	0.72	5,000–6,999	Midwest
C	Private	0.52	Less than 1,000	Northeast
D	Private	0.36	Less than 1,000	Northeast
E	Private	0.62	1,000–2,999	Northeast
F	Public	0.79	Less than 1,000	West
G	Private	0.56	Less than 1,000	West
H	Public	0.60	5,000–6,999	South
I	Private	0.56	1,000–2,999	South
J	Public	0.07	Less than 1,000	Northeast
K	Public	0.43	3,000–4,999	South
L	Public	0.39	3,000–4,999	South
M	Private	0.65	1,000–2,999	South

<sup>a</sup> The number of students admitted divided by number applied.

<sup>b</sup> Geographic region derived from the U.S. Census Regions and Divisions Map.

<sup>3</sup> Study Coordinators were given a stipend as compensation for their assistance.

<sup>4</sup> Student participants were compensated for participating in the study. See the section entitled Motivation Strategy for more details on compensation for student participants.

**Table 2**

Number of Students by Institution with SAT Writing Scores and Archived College Board Data

<i>Institution</i>	<i>Number of Participants Colleges Estimated</i>	<i>Number of Students with SAT-Writing Scores</i>	<i>Participant Sample</i>
A	200	73	53
B	400	76	65
C	200	169	137
D	200	110	86
E	200	173	149
F	200	115	97
G	200	92	74
H	400	247	214
I	400	249	181
J	200	211	147
K	400	94	73
L	400	77	69
M	200	267	227
Total	3,600	1,953	1,572

section mandatory<sup>5</sup> for those students chosen to participate in the study. Second, 6 of the 13 participating institutions decided to restrict participants to students that were 18 years of age or older given the logistics of securing parental consent to participate in the study for students younger than 18 years of age. Third, two schools did not target all incoming students, but only those in a specific program or department. Fourth, it is possible that not all incoming students attended summer orientation, when 6 of the 13 institutions held the administration of the SAT writing section. Finally, the level of compensation offered to study participants may not have been enough to entice students to volunteer to participate in the study.<sup>6</sup>

Of the 1,953 students who did volunteer to participate in the study, the SAT records for 381 students could *not* be located in the College Board database on the basis of information (i.e., Social Security number, date of birth, and name) gathered during the SAT writing section administration. Although the exact reason for this discrepancy is not known, it is likely the result of having incorrect or incomplete information provided by students during the administrations of the SAT

writing section. It is also possible that some students who participated in the SAT writing section administration did not actually take the SAT.

Because these 381 participants could not be identified in the College Board database, it was necessary to drop them from further inclusion in the study.<sup>7</sup> As Table 2 shows, the resulting participant sample consisted of the 1,572 student participants who took the SAT writing section and who were also identified in the College Board database (i.e., who also took the operational SAT).

Tables 3 and 4 present the overall gender and ethnicity breakdown of the participant sample. The gender and ethnicity data for the sample was derived from responses to the Student Descriptive Questionnaire (SDQ) that was completed by students when they registered to take the operational SAT. The gender and ethnicity population data were based on the 2003 *Annual Survey of Colleges* (ASC) conducted each year by the College Board.

For gender, the overall percentage comparisons of men and women in the sample versus the population were very similar. For ethnicity, however, the percent of different racial and ethnic groups in the sample versus the population somewhat varied. However, it is important to note that the different sources of sample and population data (i.e., SDQ versus ASC) did not gather ethnicity data in the same manner. Thus, some of the sample-population difference may simply reflect differences in how the two data sources chose to gather this information. Appendix Tables A1 through A3 present gender and ethnicity percentages by institution for the FGPA and ECGPA samples separately.<sup>8</sup>

**Table 3**

Sample and Population Percentages for Gender by Institution

	<i>N</i>	<i>Gender (%)</i>	
		<i>Female</i>	<i>Male</i>
Sample	1,572	55	45
Population 1	30,595	53	47
Population 2	1,406,324	55	45

Note: Sample consists of participants in the SAT Writing Validation Study.

Population 1 consists of all 2003-04 freshmen from participating institutions.

Population 2 consists of all college-bound seniors who completed the SAT I in 2003.

<sup>5</sup> Although two institutions made attendance at the administration of the SAT writing section mandatory, student participants were still told that their participation in the study was voluntary.

<sup>6</sup> At the first data collection, several students left the session after being told how much compensation they would be offered for participation. Because students were given this information before agreeing to participate, it is not known how many students chose not to participate solely because of the level of compensation being offered.

<sup>7</sup> The original information was carefully reviewed in an effort to correctly identify all student participants in the College Board database and thus minimize loss of information. The review involved comparing problematic student participant information provided on test forms to information provided on informed consent forms, waivers, reimbursement forms, and sign-in sheets. Whenever possible, incorrect name spelling, school codes, or other information was modified.

<sup>8</sup> The FGPA sample included participants that had complete data on all predictors and FGPA. The ECGPA sample included participants that had complete data on all predictors and ECGPA. See the section entitled Missing Data for a more complete description of how these samples were derived.



**Table 4**

Sample and Population Percentages for Ethnicity by Institution

	N	Ethnicity (%)							
		Native American	Asian, Asian American, Pacific Islander	Black or African American	Hispanic	White	International Students	Other	Not Reported
Sample	1,572	0	5	12	3	57	NA	2	21
Population 1	30,595	*	6	11	5	69	3	NA	4
Population 2	1,406,324	*	7	9	8	48	NA	3	25

Note: Sample consists of participants in the SAT Writing Validation Study.

Population 1 consists of all 2003-04 freshmen from participating institutions.

Population 2 consists of all college-bound seniors who completed the SAT I in 2003.

\* indicates less than 1 percent.

## Materials

The testing materials used in the data collection were specified in the *Supervisor's Manual* that accompanied the SAT writing section and described the test administration and handling procedures. Prior to each data collection session, the anticipated number of participants was sent to the College Board, along with contact information for the Study Coordinator. The College Board then arranged for the secure shipping of testing materials directly to the Study Coordinator.

The materials needed for data collection included the following:

1. Prototype version of the new SAT writing section;
2. *Supervisor's Manual* for administering the SAT writing section;
3. Informed-consent forms;
4. Waivers to release SAT data and first-year grades;
5. Reimbursement forms;
6. Institutional review board materials; and
7. General testing materials (e.g., pencils, stopwatch, sign-in forms).

## Data Collection

### Staff Training

Depending on the number of testing sessions at a given institution, one or two research staff attended each data collection to provide assistance and to ensure that the administration procedures were performed uniformly across institutions. All research staff participated in a half-day training session prior to attending a testing session. Training topics included:

- Procedures for test administration and handling (i.e., the *Supervisor's Manual*);
- Recruitment of student participants (including informed-consent and waiver forms to release first-year grades and SAT data);
- Guidelines and procedures issued by the institutional review board;<sup>9</sup>
- Scheduling data collection sessions and securing space to conduct testing sessions;
- Debriefing of student participants;
- Reimbursing student participants; and
- Plans for gathering criterion data (i.e., first-year college GPA and course grades).

During the training, research staff also role-played the actual test administration procedures, including reading the standardized instructions, completing the testing incident reports, and securing and shipping testing materials at the conclusion of testing sessions.

### Scheduling

Six participating institutions conducted the data collection during the 2003 summer orientation, and seven collected data during the initial weeks of the fall 2003 semester. Initially, the Study Coordinators were asked to schedule the data collections in a single testing session; however, due to space and/or time restrictions, some schools held multiple testing sessions during the same day, and one school held data collections over the course of three days given the small size of their summer orientation sessions. No problems were reported at the institutions that held multiple testing sessions; however, it is unknown whether student participants in the latter sessions at these institutions were informed about the motivation strategy (described below) that was used in this study.

<sup>9</sup> This included guidelines issued by the institutional review board of the contractor, as well as the institutional review board for participating institutions, if applicable. For example, one institution required the successful completion of an online human subjects review and test by the contractor's Project Director and staff assisting in the data collection at that institution.

---

## Motivation Strategy

There was concern that students would not be motivated to try their best during the study because their level of performance on the SAT writing section would not be associated with any personal outcomes. This was a concern for a number of reasons. For one, to the extent that participants did not try their best, it would be difficult to determine whether the study results reflect the characteristics of the SAT writing section or differences in the motivational sets of the student participants versus the actual SAT takers; as a result, it would be difficult to generalize the student participants' results to actual test-takers who are in most instances motivated to try their best given the stakes associated with taking the operational SAT.

As a means of motivating participants to perform their best in this study, students were told that in addition to receiving a set amount of compensation for their participation in the study,<sup>10</sup> they would earn a \$20 bonus payment if the equivalent scale score on the SAT writing section was within 30 points of, or exceeded, their SAT verbal score.<sup>11</sup> This strategy was intended to provide an incentive for student participants to try their best, despite participating in a research study with no individual consequences. At the first three participating institutions, students received a total of \$30, while at the remaining 10 institutions the total payment was increased to \$50.<sup>12</sup>

## Testing Session Procedures

Preparation for the test administration began with each institution's Study Coordinator receiving test administration materials. The *Supervisor's Manual* instructed the Study Coordinator to verify the accuracy of the contents in the shipment and to securely store the materials until test day. The Study Coordinators also were provided with instructions for preparing the testing room(s), ensuring that test proctors understood the test administration procedures and that no special accommodations were offered to students during the research study.

At each testing session, the prototype version of the SAT writing section was administered. These sessions were designed to be as similar as possible to an actual SAT administration. The official *Supervisor's Manual* used for SAT writing section administrations was followed with only slight modifications to incorporate instructions for proctors to collect informed consent forms, to debrief

student participants, and to collect reimbursement forms used for the study.<sup>13</sup> Each test session lasted approximately 90 minutes, including the time it took to read instructions, answer questions, and allow participants to complete all paperwork.

Participants were debriefed after they completed the prototype version of the SAT writing section, and the test booklets and answer sheets were collected. The debriefing explained the purpose of the study and provided a general description of how participant scores and other data would be used to assess the predictive and incremental validity of the SAT writing section. Students were asked not to discuss the study with other students until November 1, 2003, to avoid disclosing the motivation strategy to students in other testing sessions or at other participating institutions. Once participants were thanked and dismissed, the testing materials were packaged and shipped to the College Board according to the shipping instructions specified in the *Supervisor's Manual*.

The multiple-choice items were scored electronically, and the essay questions were scored by human readers using a holistic approach. Each essay was independently scored by two qualified readers on a scale of 1 to 6, with the combined score ranging from 2 to 12. If the two readers' scores differed by more than one point, a third reader scored the essay. The readers were experienced high school teachers and college faculty members who primarily teach English composition or language arts courses, or another subject area that requires a substantial amount of writing. The readers were required to qualify for scoring by completing a rigorous training course that familiarized them with the principles of holistic scoring and taught them to evaluate essays according to the agreed-upon standards. A full description of the scoring process, as well as a copy of the essay scoring guide, can be found at the College Board Web site.

## Variables

In addition to component (multiple-choice, essay) and combined scores on the SAT writing section, other predictor information included operational SAT mathematics and verbal scores, operational SAT combined scores, and self-reported high school GPAs (HSGPA). These latter data were obtained from the College Board SAT database.

<sup>10</sup> Two institutions chose to distribute gift certificates for the school bookstore instead of cash.

<sup>11</sup> In actuality, each student participant received the maximum amount of money possible for participating in the study (i.e., the promised set amount plus the bonus amount).

<sup>12</sup> The total payment amount was increased based on feedback from research staff that the incentive amount was not enough to keep students interested in completing the test.

<sup>13</sup> The College Board and contractor staff met to discuss and modify the *Supervisor's Manual* prior to its use. This meeting served to make sure that the contents of the manual were understood and that changes made to it did not alter the established administration procedures.

Two criteria were used in this study—first-year college grade point average (FGPA) and GPA in English composition courses (ECGPA). After the final semester of the 2003-04 school year, the Study Coordinator from each institution provided transcripts of course grades and FGPA for all student participants. With the exception of two institutions, criterion data were provided electronically. For the two institutions that provided paper versions of participant transcripts, the criterion data were hand-entered and verified to ensure accuracy.

The ECGPA criterion was defined as the average GPA in those courses that were identified as the typical composition courses taken by first-year students at a given institution.<sup>14</sup> Appendix Table A4 shows the specific courses on which ECGPA is based. Appendix Table A5 shows the numeric equivalent of letter grades for each institution, which were converted to a numeric scale using the conversions shown.<sup>15</sup>

Table 5 presents the predictor and criterion variables used in this study along with a description of the variables' content and possible range of values.

**Table 5**

Variables of Interest		
<i>Variable Label</i>	<i>Variable Description</i>	<i>Properties</i>
SAT-V	Scaled score on SAT verbal section	Range: 200 to 800
SAT-M	Scaled score on SAT mathematics section	Range: 200 to 800
SAT-T	Scaled composite score of the sum of SAT mathematics and verbal sections	Range: 400 to 1600
SAT-ES	Final essay score on writing section	Range: 0, 2–12 (0 if illegible or off topic)
SAT-MC	Scaled multiple-choice score on writing section	Range: 200 to 800
SAT-W	Scaled composite score on writing section	Range: 200 to 800
HSGPA	High school cumulative GPA	Range: 0.0 (F) to 4.3 (A+)
FGPA	First-year cumulative grade point average	Range: 0.0 (F) to 4.3 (A+)
ECGPA	Average or specific course grade(s) in English composition/writing	Range: 0.0 (F) to 4.3 (A+)

## Analytic Approach

Three overriding issues influenced the analytic approach to this study. The first issue dealt with variability across participating institutions. Specifically, the institutions that participated in this study varied on a number of dimensions, particularly in terms of their first-year English composition requirements and how they calculated GPA. Such between-institution variability could potentially introduce a source of error if results were calculated by combining the data across institutions. For example, if two institutions calculate GPA using different standards, then it would be misleading to assume the same GPA across these two institutions are equivalent. And by extension, it would be impossible to unequivocally determine the extent to which the observed relationship between the scores on the SAT writing section and GPA are the result of using different GPA measures or a reflection of the true relationship between writing ability and GPA. To circumvent this issue, a meta-analytic approach was used for all analyses, treating each institution as an independent sample. Thus, all analyses were conducted within each institution first, and then averaged across institutions to derive overall study estimates.<sup>16</sup>

The second issue that influenced the analytic approach to this study dealt with the potential effects of the research design on observed validity coefficients. In this case, a sample of current first-year students was used to estimate the predictive and incremental validity of the SAT writing section for the population of college-bound applicants. With a study sample of already accepted college freshmen, range restriction in the variance of scores on the primary predictors used to select them (i.e., SAT mathematics, SAT verbal, and HSGPA) is expected when compared to the variance of these predictors for all college-bound applicants. Consequently, this range restriction in the sample score distributions may lead to underestimates of their true relationship with the criterion in the population. This was also expected to be a problem when assessing the validity of scores on the SAT writing section because of the expected positive correlation between scores on the SAT writing section, scores on the operational SAT, and HSGPAs.

To handle this second issue, statistical procedures to correct for multivariate range restriction (Lord and Novick, 1968) were applied. To compute these corrected values, the population covariance matrix for the 2003 SAT verbal and mathematics scores was used to estimate corrected (i.e., total range) correlations among the predictors and criterion. The results associated with these corrected coefficients were interpreted as the validity results that

<sup>14</sup> Curriculum information was obtained from Study Coordinators and Web sites to gain an understanding of each institution's English composition courses and requirements for freshman students.

<sup>15</sup> These conversions are for first-year grades only (not high school GPA).

<sup>16</sup> Weighted averages were calculated to ensure that the overall estimates accounted for differences in the sample sizes across institutions.

---

would be expected if all 2003 SAT examinees were to be enrolled in the institutions included in this study.

The final issue that influenced the analytic approach to this study involved the need to account for instability in sample-based estimates of validity coefficients. That is, sample-based idiosyncrasies tend to result in validity coefficients that are overestimates of their true population value. To get a better estimate of how much the sample-based estimates will “shrink” when applied to the population, the Rozeboom (1978) Formula 8 statistical correction procedure was used. This procedure estimates the expected validity of sample-based regression weights when applied to the population.

## Results

The results that follow are organized into the following five sections:

- participant motivation;
- missing data;
- descriptive statistics;
- individual validities; and
- incremental validities.

The first three sections address data-quality issues. The first of these, participant motivation, describes the results of analyses to identify and remove those student participants whose pattern of results suggest they did not try their best on the SAT writing section. The next section, missing data, describes the derivation of the final analysis sample sizes for analyses with respect to both criteria, FGPA and ECGPA. The descriptive statistics section presents variable means, standard deviations, and ranges.

The last two sections provide the validity results. The individual validities section reports the correlations between each predictor individually and each criterion variable. In comparison, the incremental validities section shows the validity results for various combinations of predictors and first-year college GPA.

### Participant Motivation

To gauge the extent to which participants were likely to have given their best effort on the SAT writing section, an outlier analysis was conducted. First, the distribution of scores on the SAT writing section was plotted, and cases that were more than 2.0 standard deviations (positive or negative) from the mean were flagged. These flagged cases represented participants with extreme scores on the SAT writing section relative to the rest of the sample. At the low end, 38 participants had scores that were equal to or greater than 2.0 standard deviations below the mean. At the high

end, 34 participants had scores that were equal to or greater than 2.0 standard deviations above the mean.

In addition, a regression equation was calculated to predict scores on the SAT writing section on the basis of SAT verbal scores. This equation was fairly predictive in that more than 41 percent of the variance in scores on the SAT writing section was accounted for on the basis of SAT verbal scores. Using the regression equation, predicted scores on the SAT writing section were calculated and then used to derive a residual score by subtracting the actual score on the SAT writing section from the predicted score. These residual scores were then plotted in the same manner as the actual scores on the SAT writing section. Again, extreme scores were flagged using the 2.0 standard deviation cutoff, with 42 participants having extremely low residual scores (indicating their actual scores were well below their predicted scores), and 23 participants having extremely high residual scores (indicating their actual scores were well above their predicted scores).

The results of each analysis were mapped against each other (see Table 6). As Table 6 shows, whether dealing with actual or residual scores, the number of participants with scores 2.0 standard deviations from the mean is roughly equivalent. When looking at scores that are 2.5 standard deviations from the mean, there were four participants with a residual score 2.5 standard deviations above the mean and eight participants with residual scores of 2.5 standard deviations below the mean. In terms of actual scores on the SAT writing section, no participants had a score of 2.5 (or higher) standard deviations above the mean, and six participants had scores 2.5 standard deviations below the mean.

Given the roughly equal number of participants with scores at 2.0 standard deviations above and below the mean for both actual and residual scores, and the mixed pattern of findings at the 2.5 standard deviation level, those participants who had a score of 2.5 or more below the mean for both actual and residual scores were flagged and removed from further inclusion in the analyses (see the boldface numbers in Table 6). The rationale for removing these five participants from further analysis was that their scores on the SAT writing section were sufficiently below those exhibited by the other participants, and well below what would have been expected on the basis of their SAT verbal score, and that it was likely they did not give their best effort in completing the SAT writing section, therefore suggesting that their scores were not reflective of their true performance level. Furthermore, even though SAT writing and SAT verbal scores were correlated in the student sample ( $r = 0.64$ ), there is still some error in the regression model for predicting SAT writing scores from SAT verbal scores. Thus, the use of both residual and actual outlier SAT writing scores represents a conservative approach to flagging highly unmotivated student participants.

**Table 6**

Number of Participants with Outlier SAT Writing Scores When Compared to Predicted SAT Writing Scores

SAT Writing Score <sup>b</sup>	SAT Writing Residual Score <sup>a</sup>												Total
	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	2.5	
-3.0	<b>1</b>	-	-	-	-	-	-	-	-	-	-	-	1
-2.5	<b>2</b>	<b>2</b>	2	-	-	-	-	-	-	-	-	-	6
-2.0	12	4	4	3	3	4	1	-	-	-	-	-	31
-1.5	-	1	4	10	13	8	9	2	-	-	-	-	47
-1.0	-	1	5	24	34	43	45	3	-	-	-	-	155
-0.5	-	-	1	14	25	65	109	12	-	-	-	-	226
0.0	-	-	3	4	35	97	303	81	14	4	-	1	542
0.5	-	-	-	-	1	15	125	75	44	12	-	-	272
1.0	-	-	-	-	-	1	32	39	45	18	4	1	140
1.5	-	-	-	-	-	-	7	23	28	17	10	-	85
2.0	-	-	-	-	-	-	-	3	5	19	5	2	34
Total	15	8	19	55	111	233	631	238	136	70	19	4	1,539

<sup>a</sup>SAT writing residual score represents the standard deviation units associated with the difference between the predicted SAT writing score and the actual SAT writing score.

<sup>b</sup>SAT writing score represents the standard deviation associated with the SAT writing score.

Note: Boldface numbers represent students with outlier SAT writing scores and were subsequently removed from the sample.

## Missing Data

In assessing missing data, the major concern was whether there were complete data on the predictors and criteria for all participants. Complete data is required because listwise deletion strategies will drop from the analyses all participants that do not have data on any given variable used in the analyses. Although pairwise deletion strategies could be adopted to help keep sample sizes as large as

possible, such an approach was not used because all the resulting statistics might then be based on different samples. Furthermore, pairwise deletion strategies also can result in greater instability in some statistical estimates, such as regression weights (Tabachnick and Fidell, 1996).

Table 7 shows the level of missing data on each of the variables of interest in the study. The final two columns of Table 7 show the listwise *N* for each criterion of interest,

**Table 7**

Number of Students with Complete Predictor and Criterion Data by Institution

Institution	Participant Sample	SAT-M	SAT-V	SAT-W	HSGPA	FGPA	ECGPA	Final Listwise N FGPA	Final Listwise N ECGPA
A	53	52	52	52	47	47	43	47	43
B	65	65	65	62	54	54	36	53	36
C	137	136	136	134	111	110	46	110	46
D	86	86	86	85	64	61	31	61	31
E	149	148	148	146	127	125	93	125	93
F	97	97	97	96	79	79	78	79	78
G	74	74	74	74	58	58	58	58	58
H	214	213	213	208	157	153	115	151	113
I	181	179	179	177	149	144	128	144	128
J	147	144	144	141	122	113	113	113	113
K	73	73	73	73	64	64	35	64	35
L	69	68	68	67	58	58	41	58	41
M	227	226	226	224	190	187	76	185	76
Total	1,572	1,561	1,561	1,539	1,280	1,253	893	1,248	891

Note: Final listwise *N* indicates the number of participants with complete data on all predictors and the respective criteria, removing participants with extreme negative SAT writing scores (as shown in Table 6).

FGPA and ECGPA. These columns show the number of participants for each institution who had complete data across all the predictors and the given criterion. For example, for Institution A there was a total of 53 participants (Column 2), of which 52 had scores on the SAT writing section, as well as SAT math and SAT verbal scores (Columns 3 through 5). For these 53 participants from Institution A, HSGPA (Column 6) and FGPA (Column 7) data were available for only 47 participants. Similarly, GPA in English composition courses (Column 8) was only available for 43 of the 53 participants from Institution A. Thus, the listwise *N* with respect to FGPA (Column 9) shows that of the 53 participants from Institution A, only 47 had complete data on all the predictors plus first-year college GPA. Likewise, the listwise *N* for GPA in English composition courses (Column 10) shows that only 43 of the 53 participants from Institution A had complete data on all the predictors and English composition GPA.

As Table 7 shows, there often was a significant reduction in the listwise *N* when going from the FGPA to ECGPA criterion. Thus, the total available sample size when focusing on FGPA is 1,248, whereas the total sample when using the GPA in English composition courses is 891. This difference likely reflects the differences across participating institutions in English composition requirements for first-year students (e.g., some participants placed out of required English composition courses and therefore did not have a GPA for English composition courses).

## Descriptive Statistics

Basic descriptive statistics are shown for each variable of interest in Table 8. The top of Table 8 presents the results for the sample in which complete data were available across all predictors and FGPA. The bottom of Table 8 presents the results for the sample in which complete data were available for all predictors and ECGPA. Comparison of these two tables shows that despite the drop in listwise *N*, the overall means, standard deviations, and score ranges for all variables of interest remain fairly similar. Appendix Tables A6 (FGPA) and A7 (ECGPA) contain the comparable descriptive statistics for each

**Table 8**

Descriptive Statistics for All Predictors, First-Year College GPA, and English Composition GPA Across Institutions

Variable	First-Year College GPA Sample				
	<i>N</i>	Mean	<i>SD</i>	Minimum	Maximum
SAT-M	1,248	610	85	330	800
SAT-V	1,248	599	82	290	800
SAT-T	1,248	1,209	149	680	1,600
SAT-ES	1,248	7.97	1.63	2.00	12.00
SAT-MC	1,248	574	101	310	800
SAT-W	1,248	580	98	320	800
HSGPA	1,248	3.76	0.46	1.00	4.30
FGPA	1,248	3.17	0.60	0.00	4.00
Variable	English Composition GPA Sample				
	<i>N</i>	Mean	<i>SD</i>	Minimum	Maximum
SAT-M	891	603	86	330	800
SAT-V	891	587	81	290	800
SAT-T	891	1,190	149	680	1,530
SAT-ES	891	7.81	1.59	2.00	12.00
SAT-MC	891	562	100	310	800
SAT-W	891	567	96	320	800
HSGPA	891	3.72	0.48	1.00	4.30
ECGPA	891	3.11	0.61	0.36	4.00

participating institution. Appendix Table A8 compares the SAT mathematics and SAT verbal scores for the sample and population by institutions.

## Individual Validities

Although the primary objective of this study was to assess the incremental validity of scores on the SAT writing section over the current operational SAT and HSGPA, the validity of all study predictors were of interest. Hence, corrected and uncorrected validity coefficients were calculated for each predictor-criterion relationship and are reported in Table 9. Note that the values reported in this table represent the weighted-average validity coefficient across all of the participating institutions.

**Table 9**

Weighted-Average Correlations for All Predictors with First-Year College GPA and English Composition GPA

Predictor	FGPA			ECGPA		
	<i>N</i>	Corrected	Uncorrected	<i>N</i>	Corrected	Uncorrected
SAT-V	1,248	0.49	0.32	891	0.30	0.20
SAT-M	1,248	0.47	0.29	891	0.23	0.10
SAT-T	1,248	0.51	0.35	891	0.28	0.17
SAT-ES	1,248	0.20	0.16	891	0.18	0.14
SAT-MC	1,248	0.45	0.30	891	0.31	0.22
SAT-W	1,248	0.46	0.32	891	0.32	0.24
HSGPA	1,248	0.43	0.38	891	0.35	0.32

Note: Corrected for multivariate range restriction (Lord and Novick, 1968).

As shown in Table 9, the average corrected validity coefficient for FGPA ranged from 0.20 for the essay component of the SAT writing section score to 0.51 for the SAT combined score. In fact, when corrected for range restriction, all of the predictors except the SAT writing essay had validity coefficients of 0.43 or greater.

With respect to ECGPA, Table 9 shows that the average corrected validity coefficient ranged from 0.18 for the SAT writing essay to 0.35 for HSGPA. Table 9 also shows that the combined SAT writing section, the SAT writing multiple-choice, and the SAT verbal scores were also fairly predictive of ECGPA with corrected validity coefficients of 0.32, 0.31, and 0.30, respectively.

Appendix Table A9 reports the corrected and uncorrected validity coefficients for both FGPA and ECGPA by institution. Appendix Table A10 presents the complete corrected and uncorrected intercorrelation matrix among predictors and FGPA by institution, and

**Table 10**

Summary of Hierarchical Regression Models	
Model	Equations
A	Step 1: SAT-V + SAT-M + HSGPA
	Step 2: SAT-V + SAT-M + HSGPA + SAT-W
B	Step 1: SAT-T + HSGPA
	Step 2: SAT-T + HSGPA + SAT-W
C	Step 1: HSGPA
	Step 2: HSGPA + SAT-V + SAT-M
	Step 3: HSGPA + SAT-V + SAT-M + SAT-W
D	Step 1: SAT-W
	Step 2: SAT-W + HSGPA
	Step 3: SAT-W + HSGPA + SAT-V + SAT-M
E	Step 1: SAT-V + SAT-M
	Step 2: SAT-V + SAT-M + SAT-W
	Step 3: SAT-V + SAT-M + SAT-W + HSGPA

**Table 11**

Weighted-Average Incremental Validity Results Across Institutions for Predicting First-Year College GPA (Model A)					
	Step	Adjusted		Unadjusted	
		R	ΔR	R	ΔR
Corrected	1: SAT-V + SAT-M + HSGPA	0.59		0.63	
	2: SAT-V + SAT-M + HSGPA + SAT-W	0.60	0.01	0.64	0.02
Uncorrected	1: SAT-V + SAT-M + HSGPA	0.46		0.51	
	2: SAT-V + SAT-M + HSGPA + SAT-W	0.47	0.01	0.53	0.02

Note:  $N = 1,248$ . Corrected correlations were corrected for multivariate range restriction (Lord and Novick, 1968). Adjusted correlations were adjusted for shrinkage using the Rozeboom (1978) Formula 8.

**Table 12**

Weighted-Average Incremental Validity Results Across Institutions for Predicting First-Year College GPA (Model B)					
	Step	Adjusted		Unadjusted	
		R	ΔR	R	ΔR
Corrected	1: SAT-T + HSGPA	0.59		0.62	
	2: SAT-T + HSGPA + SAT-W	0.60	0.01	0.63	0.02
Uncorrected	1: SAT-T + HSGPA	0.46		0.50	
	2: SAT-T + HSGPA + SAT-W	0.47	0.01	0.52	0.02

Note:  $N = 1,248$ . Corrected correlations were corrected for multivariate range restriction (Lord and Novick, 1968). Adjusted correlations were adjusted for shrinkage using the Rozeboom (1978) Formula 8.

**Table 13**

Weighted-Average Incremental Validity Results Across Institutions for Predicting First-Year College GPA (Model C)					
	Step	Adjusted		Unadjusted	
		R	ΔR	R	ΔR
Corrected	1: HSGPA	0.40		0.43	
	2: HSGPA + SAT-V + SAT-M	0.59	0.19	0.63	0.20
	3: HSGPA + SAT-V + SAT-M + SAT-W	0.60	0.01	0.64	0.02
Uncorrected	1: HSGPA	0.35		0.38	
	2: HSGPA + SAT-V + SAT-M	0.46	0.11	0.51	0.13
	3: HSGPA + SAT-V + SAT-M + SAT-W	0.47	0.01	0.53	0.02

Note:  $N = 1,248$ . Corrected correlations were corrected for multivariate range restriction (Lord and Novick, 1968). Adjusted correlations were adjusted for shrinkage using the Rozeboom (1978) Formula 8.

Appendix Table A11 presents the complete corrected and uncorrected intercorrelation matrix among predictors and ECGPA by institution. The weighted-average correlation matrix among predictors and FGPA is shown in Appendix Table A12 and the weighted-average correlation matrix among predictors and ECGPA is shown in Appendix Table A13.

## Incremental Validities

To assess the incremental validity of the SAT writing section (as well as that associated with HSGPA and the current operational SAT scores), a series of hierarchical regression analyses were conducted. For all models, corrections were made for both range restriction and shrinkage. The main models tested (Models A and B) were designed to assess the incremental validity of SAT writing scores<sup>17</sup> over the SAT verbal and mathematics scores and HSGPA. These models varied in how SAT scores were treated. For Model A, SAT verbal and mathematics scores were entered separately into the first step of the hierarchical regression along with HSGPA. For Model B, SAT verbal and mathematics scores were first added to form an SAT combined score, which was then entered into the first step of the regression equation along with HSGPA.

The remaining models (Models C, D, and E) were designed to assess the incremental validities of various combinations of the predictors of interest. Table 10 describes each of the models tested.

Table 11 reports the incremental validity results for Model A. As shown in the top left portion of the table, the incremental validity of the scores on the SAT writing section when added to SAT verbal scores, SAT mathematics scores, and HSGPA was 0.01 when corrections for range restriction and shrinkage were made. The multiple correlation for this fully corrected model was 0.60, providing the best estimate

of the validity of SAT verbal, mathematics, and writing scores, along with HSGPA, for predicting first-year college GPA. Appendix Table A14 presents the incremental validity results for Model A by institution. Due to the relatively small sample sizes, the Model A results for individual institutions, as well as those for all other multivariate models, should be interpreted with caution.

Model B varied from Model A by using the SAT combined score in place of separate SAT verbal and mathematics scores. Despite this change, however, the fully corrected incremental validity results were identical to those for Model A (see Table 12). Given the similarity in results across these two models, SAT combined scores were not considered in testing Models C, D, and E. Appendix Table A15 presents the incremental validity results for Model B by institution.

Given that the best validity estimate for the full model was 0.60, the next set of analyses sought to determine the relative contribution of each of the various predictors to predicting FGPA. In Model C (see Table 13), HSGPA was entered in the first step, resulting in a fully corrected validity coefficient of 0.40. Adding SAT verbal and mathematics scores in the second step resulted in an increment of 0.19 to the fully corrected validity coefficient.<sup>18</sup> Consistent with Models A and B, adding scores on the SAT writing section in the final step resulted in an increment of 0.01 to the fully corrected validity coefficient. Appendix Table A16 presents the incremental validity results for Model C by institution.

In Model D (see Table 14), scores on the SAT writing section were entered in the first step, resulting in a fully corrected validity coefficient of 0.43. Adding HSGPA in the second step resulted in an increment of 0.11 to the fully corrected validity coefficient, and adding SAT verbal and mathematics scores in the final step resulted in an additional increment of 0.06. Appendix Table A17 presents the incremental validity results for Model D by institution.

**Table 14**

Weighted-Average Incremental Validity Results Across Institutions for Predicting First-Year College GPA (Model D)

	Step	Adjusted		Unadjusted	
		R	ΔR	R	ΔR
Corrected	1: SAT-W	0.43		0.46	
	2: SAT-W + HSGPA	0.54	0.11	0.58	0.12
	3: SAT-W + HSGPA + SAT-V + SAT-M	0.60	0.06	0.64	0.07
Uncorrected	1: SAT-W	0.28		0.32	
	2: SAT-W + HSGPA	0.43	0.16	0.47	0.16
	3: SAT-W + HSGPA + SAT-V + SAT-M	0.47	0.04	0.53	0.06

Note:  $N = 1,248$ . Corrected correlations were corrected for multivariate range restriction (Lord and Novick, 1968). Adjusted correlations were adjusted for shrinkage using the Rozeboom (1978) Formula 8.

<sup>17</sup> Only the SAT writing section scale composite (i.e., total) score was used in the incremental validity analyses.

<sup>18</sup> It is noted that in other validity studies, the incremental validity of the SAT over HSGPA in predicting FGPA typically ranges from 0.06 to 0.08 (e.g., Bridgeman, McCamley-Jenkins, and Ervin, 2000; Ramist, Lewis, and McCamley-Jenkins, 1994). The large incremental validity for the SAT when corrected for multivariate range restriction (0.19, as shown in Table 13) may be due to instability due to the small sample size in this study relative to the sample sizes used in the other studies.



**Table 15**

Weighted-Average Incremental Validity Results Across Institutions for Predicting First-Year College GPA (Model E)

	Step	Adjusted		Unadjusted	
		R	$\Delta R$	R	$\Delta R$
Corrected	1: SAT-V + SAT-M	0.50		0.53	
	2: SAT-V + SAT-M + SAT-W	0.51	0.01	0.56	0.03
	3: SAT-V + SAT-M + SAT-W + HSGPA	0.60	0.09	0.64	0.08
Uncorrected	1: SAT-V + SAT-M	0.31		0.37	
	2: SAT-V + SAT-M + SAT-W	0.33	0.02	0.42	0.05
	3: SAT-V + SAT-M + SAT-W + HSGPA	0.47	0.14	0.53	0.12

Note:  $N = 1,248$ . Corrected correlations were corrected for multivariate range restriction (Lord and Novick, 1968). Adjusted correlations were adjusted for shrinkage using the Rozeboom (1978) Formula 8.

In Model E (see Table 15), SAT verbal and mathematics scores were entered in the first step, resulting in a fully corrected validity coefficient of 0.50. Adding scores on the SAT writing section in the second step resulted in an increment of 0.01 to the fully corrected validity coefficient. Finally, adding HSGPA in step 3 resulted in an increment of 0.09 to the fully corrected validity coefficient. Appendix Table A18 presents the incremental validity results for Model E by institution.

## Discussion

This study was designed to assess the predictive validity of the SAT writing section. Predictive validity was assessed against first-year college GPA and GPA in English composition courses. Despite a lower than anticipated student participation rate at most of the 13 institutions that volunteered to participate in the study, the validity results remained generally consistent with prior research.

The first objective of the study was to assess the validity of scores on the SAT writing section for admissions decision making. To this end, the focus was on both the correlations between scores on the SAT writing section and FGPA and on the incremental validities that show the increase in the level of prediction that occurs by adding scores on the SAT writing section to existing predictors of FGPA (e.g., HSGPA and SAT verbal and mathematics scores).

The College Board (1999) reports correlations of 0.31 to 0.51 between SAT II writing scores and first-year college GPA. Consistent with these results, the weighted-average correlation between SAT writing scores and FGPA reported in this study was 0.46 when corrected for range restriction. Similarly consistent, whereas the incremental validity of the SAT II Writing Test has been reported to range between 0.00 and 0.04 (e.g., Hale et al., 1992), this study reports a weighted-average increment in the validity

estimate of 0.01 when SAT writing scores were added to SAT verbal and mathematics scores and HSGPA in predicting FGPA.

The second objective of the study was to determine the feasibility of using SAT writing scores for placement into English composition courses. To address this objective, the relationship between SAT writing scores and GPA in English composition courses was examined. Similar to previous research, which has reported weighted-average correlations between SAT II writing scores and GPA in English composition courses in the range of 0.23 to 0.79, this study found a weighted-average correlation between SAT writing scores and ECGPA of 0.32 when corrected for range restriction.

## Study Limitations

It is important to note a few limitations of the current study. First, there is no unequivocal way to assess the extent to which student participants gave their best effort on the SAT writing section. As noted above, this was a major concern at the onset given the study design and sample. The outlier analyses only flagged the most *extreme responses* that suggested a particular student participant did not give their best effort. Thus, it still remains possible that many other student participants did not give their full effort when completing the SAT writing section. To the extent that this occurred, the study results will not provide the best estimate of what to expect with actual college applicants, the true population of interest.

Second, the selection of student participants was largely based on convenience and not on a systematic sampling plan. For example, many institutions administered the SAT writing section during summer orientation, and thus, students not participating in summer orientation were excluded from participating in the study. As another example, several institutions used only students seeking a certain type of degree or from a single department. Furthermore, participation for students at all but two

<sup>19</sup> For example, at a few locations participants left the testing session after being reminded that their participation was voluntary.

institutions was voluntary, and it is not known how many students chose not to participate at each institution.<sup>19</sup>

Third, the number of participants at some of the institutions was much smaller than typically desired for validation studies. In fact, more than half the participating institutions had fewer than 100 students participate. With small sample sizes, the resulting validity estimates are generally less stable (and thus less generalizable to the relevant population) than those observed with larger samples. In contrast, as sample sizes increase, the validity estimates become more stable and thus more likely to reflect true population effects.

Finally, the prototype SAT writing section used in the study was shorter than the actual SAT writing section. Even though the focus and structure of the prototype and actual SAT writing sections are highly similar, the longer version of the SAT writing section will likely result in a more reliable estimate of writing ability. It is reasonable to speculate that the less reliable prototype version of the SAT writing section used in this study may have resulted in lower validities than might be obtained with the longer version to be implemented.

## Conclusion

In this study, the predictive and incremental validity of a prototype SAT writing section was assessed using the scores from student participants at 13 institutions. Despite potential motivation to perform issues with student participants, smaller than desired sample sizes, and other similar limitations of the study design, the results were comparable to those reported in other related research. Thus, these results are encouraging and suggest that the new SAT writing section should be a useful addition to the SAT in terms of predicting academic performance during the first year, and helpful for making placement decisions into undergraduate English composition courses.

## Recommendations for Future Research

Future studies should seek to replicate and extend this line of research using the SAT results from college-bound students who take the new SAT Reasoning Test under operational conditions (thereby avoiding the motivation to perform issue). These future studies also should be structured in a manner that allows for a more systematic sampling of participating institutions and student participants, and larger sample sizes to produce more stable and generalizable results within and across

institutions. For example, one approach would be to select a large, systematic sample from the first cohort of college-bound students to take the new SAT Reasoning Test in 2005, obtain their permission to access their first-year course grades and GPA information, and replicate the analyses conducted in this study. Such a design would provide more powerful evidence about the overall predictive and incremental validity of the new SAT writing section under operational conditions.

## References

- Breland, H. M., Kubota, M. Y., & Bonner, M. W. (1999). *The performance assessment study in writing: Analysis of the SAT II: Writing Subject Test*. (College Board Research Report No. 99-4). New York: The College Board.
- Bridgeman, B. (1991). Essays and multiple-choice tests as predictors of college freshman GPA. *Research in Higher Education*, 32, 319–31.
- Bridgeman, B., Hale, G. A., Lewis, C., Pollack, J., & Wang, M. (1992). *Placement validity of a prototype SAT with an essay*. (ETS Research Report No. RR-92-28). Princeton, NJ: Educational Testing Service.
- Bridgeman, B., McCamley-Jenkins, L., & Ervin, N. (2000). *Predictions of freshman grade point average from the revised and recentered SAT I: Reasoning Test*. (College Board Research Report No. 2000-1). New York: The College Board.
- College Board (1999). *Counselor's handbook for the SAT program: 1999–2000*. New York: The College Board.
- Hale, G. A., Bridgeman, B., Lewis, C., Pollack, J., & Wang, M. (1992). *A comparison of the predictive validity of the current SAT and an experimental prototype*. (ETS Research Report No. RR-92-32). Princeton, NJ: Educational Testing Service.
- Lord, F. M., & Novick, M. R. (1968). *Statistical theories of mental test scores*. Reading, MA: Addison-Wesley.
- Ramist, L., Lewis, C., & McCamley-Jenkins, L. (1994). *Student group differences in predicting college grades: Sex, language, and ethnic groups* (College Board Research Report No. 93-1). New York: The College Board.
- Rozeboom, W. W. (1978). Estimation of cross-validated multiple correlation: A clarification. *Psychological Bulletin*, 85(6), 1348–51.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York, NY: HarperCollins College Publishers.

# Appendix

**Table A1**

Gender Percentages for the First-Year College GPA and English Composition GPA Criterion (Sample and Population)

<i>Institution</i>	<i>Sample Size (N)</i>		<i>Female (%)</i>		<i>Male (%)</i>	
	<i>Sample</i>	<i>Population</i>	<i>Sample</i>	<i>Population</i>	<i>Sample</i>	<i>Population</i>
First-Year College GPA <sup>a</sup>						
A	47	2,826	57	59	43	41
B	53	6,390	43	48	57	52
C	110	624	65	56	35	44
D	61	590	57	47	43	53
E	125	2,650	66	56	34	44
F	79	668	27	23	73	77
G	58	362	57	55	43	45
H	151	5,965	45	55	55	45
I	144	1,455	69	67	31	33
J	113	305	24	29	76	71
K	64	4,063	61	49	39	51
L	58	3,101	50	54	50	46
M	185	1,596	75	60	25	40
Total	1,248	30,595				
English Composition GPA <sup>b</sup>						
A	43	2,826	60	59	40	41
B	36	6,390	47	48	53	52
C	46	624	63	56	37	44
D	31	590	58	47	42	53
E	93	2,650	65	56	35	44
F	78	668	27	23	73	77
G	58	362	57	55	43	45
H	113	5,965	42	55	58	45
I	128	1,455	73	67	27	33
J	113	305	20	29	80	71
K	35	4,063	54	49	46	51
L	41	3,101	39	54	61	46
M	76	1,596	70	60	30	40
Total	891	30,595				

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

<sup>a</sup> Final listwise *N* sample for first-year college GPA was used.

<sup>b</sup> Final listwise *N* sample for English composition GPA was used.

**Table A2**

## Ethnicity Percentages by Institution for the First-Year College GPA Criterion (Sample and Population)

Institution	Sample Size		Native American		Asian, Asian American, Pacific Islander		Black or African American		Hispanic		White		International Students		Other		Not Reported/ Unanswered	
	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop
A	47	2,826	2	*	4	2	2	10	4	2	77	82	-	2	4	-	6	*
B	53	6,390	0	*	9	6	8	8	0	2	74	78	-	4	4	-	6	2
C	110	624	0	*	4	3	3	3	2	2	85	90	-	2	0	-	7	0
D	61	590	0	*	2	2	2	5	7	3	80	85	-	5	3	-	7	0
E	125	2,650	1	*	6	6	2	6	2	4	80	71	-	3	3	-	6	6
F	79	668	0	1	6	5	0	1	4	7	84	77	-	4	3	-	4	5
G	58	362	0	1	9	8	0	2	7	3	74	73	-	2	0	-	10	10
H	151	5,965	0	1	5	5	5	8	9	12	71	69	-	1	3	-	8	4
I	144	1,455	0	*	0	1	87	69	2	*	0	*	-	10	3	-	8	20
J	113	305	0	1	5	5	4	5	3	6	79	81	-	*	3	-	6	2
K	64	4,063	0	*	22	14	16	12	3	6	50	59	-	2	2	-	8	6
L	58	3,101	0	*	21	11	0	9	2	3	72	69	-	4	0	-	5	4
M	185	1,596	2	*	3	2	4	5	7	6	75	79	-	4	2	-	8	3
Total	1,248	30,595																

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Pop = population.

\* indicates less than 1 percent

- indicates not applicable

**Table A3**

## Ethnicity Percentages by Institution for the English Composition GPA Criterion (Sample and Population)

Institution	Sample Size		Native American		Asian, Asian American, Pacific Islander		Black or African American		Hispanic		White		International Students		Other		Not Reported/ Unanswered	
	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop	Sample	Pop
A	43	2,826	2	*	2	2	2	10	5	2	77	82	-	2	5	-	7	*
B	36	6,390	0	*	11	6	6	8	0	2	75	78	-	4	3	-	6	2
C	46	624	0	*	2	3	7	3	2	2	80	90	-	2	0	-	9	0
D	31	590	0	*	0	2	0	5	6	3	90	85	-	5	3	-	0	0
E	93	2,650	0	*	5	6	1	6	1	4	83	71	-	3	3	-	6	6
F	78	668	0	1	5	5	0	1	4	7	85	77	-	4	3	-	4	5
G	58	362	0	1	9	8	0	2	7	3	74	73	-	2	0	-	10	10
H	113	5,965	0	1	5	5	5	8	9	12	68	69	-	1	4	-	9	4
I	128	1,455	0	*	0	1	87	69	2	*	0	*	-	10	2	-	9	20
J	113	305	0	1	5	5	4	5	3	6	77	81	-	*	3	-	8	2
K	35	4,063	0	*	11	14	26	12	3	6	51	59	-	2	0	-	9	6
L	41	3,101	0	*	17	11	0	9	0	3	78	69	-	4	0	-	5	4
M	76	1,596	3	*	4	2	7	5	8	6	67	79	-	4	3	-	9	3
Total	891	30,595																

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Pop = population.

\* indicates less than 1 percent

- indicates not applicable

**Table A4**

## English Courses Used to Create English Composition GPA

<i>Institution</i>	<i># of Courses for Inclusion</i>	<i>Course Numbers for Inclusion</i>
A	3	ENG 130: The Stretch Program
		ENG 131: Elementary Composition
		ENG 140: Honors Elementary Composition
B	2	ENG 110: First-Year English Composition
		ENG 110H: First-Year English Composition Honors
C	20	ENG 101: Texts and Contexts (12 topics)
		ENG 212: Writing: Special Topics (4 topics)
		ENG 218: Creative Writing (3 topics)
		ENG 220: Critical Approaches and Literary Methods
D	1	ENG 110: College Writing
E	2	WRT 105: Practices of Academic Writing
		WRT 109: Academic Writing Honors
F	2	EPICS 151: Design
		LIHU 100: Nature and Human Values
G	2	AM 145: Antiquity and Modernity Semester 1
		AM 146: Antiquity and Modernity Semester 2
H	2	ENC 1101: Composition I
		ENC 1102: Composition II
I	2	ENG 002: Freshman Composition
		ENG 003: Freshman Composition
J	2	ENG 2111: English Composition and Speech
		ENG 2101: Principles of Expository Writing
K	1	ENG 101: Introduction to Writing
L	3	ENWR 110: Accelerated Academic Writing
		ENWR 210: Advanced Academic Writing
		TCC 101: Language Communication and Technological Society
M	4	ENG 10803: Introductory Composition
		ENG 10833: Composition Freshman Seminar
		ENG 20803: Intermediate Composition: Writing Within Communities
		ENG 10203: Introduction to Creative Writing

**Table A5**

## Conversion Charts Provided by Each Institution to Convert First-Year Letter Grades to Numerical GPA Scale

<i>Grade</i>	<i>Institution</i>												
	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>	<i>J</i>	<i>K</i>	<i>L</i>	<i>M</i>
A+	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
A	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
A-	3.70	3.70	3.67	3.70	3.67	-	3.70	3.75	-	3.70	4.00	3.70	-
B+	3.30	3.30	3.33	3.30	3.33	-	3.30	3.25	-	3.30	3.00	3.30	-
B	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
B-	2.70	2.70	2.67	2.70	2.67	-	2.70	2.75	-	2.70	3.00	2.70	-
C+	2.30	2.30	2.33	2.30	2.33	-	2.30	2.25	-	2.30	2.00	2.30	-
C	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
C-	1.70	1.70	1.67	1.70	1.67	-	1.70	1.75	-	1.70	2.00	1.70	-
D+	1.30	1.30	1.33	1.30	1.33	-	1.30	1.25	-	-	1.00	1.30	-
D	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
D-	0.70	-	0.67	0.70	0.67	-	0.70	0.75	-	-	1.00	0.70	-
F	0.00	0.00 <sup>a</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

<sup>a</sup> F is designated as an E or EN.

**Table A6**

Descriptive Statistics for Sample with Complete Data Across All Predictors and First-Year College GPA

<i>Institution</i>	<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Institution</i>	<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
A	SAT-V	47	511	82	330	680	H	SAT-V	151	562	64	380	750
	SAT-M	47	515	83	350	780		SAT-M	151	560	68	390	730
	SAT-T	47	1,026	144	690	1,350		SAT-T	151	1,121	108	840	1,410
	SAT-ES	47	7.09	1.53	3.00	10.00		SAT-ES	151	6.93	1.60	3.00	11.00
	SAT-MC	47	510	103	310	770		SAT-MC	151	510	79	350	690
	SAT-W	47	513	98	330	790		SAT-W	151	511	74	360	690
	HSGPA	47	3.40	0.54	2.30	4.30		HSGPA	151	3.61	0.45	2.30	4.30
FGPA	47	2.88	0.76	0.00	3.97	FGPA	151	3.00	0.65	1.14	4.00		
B	SAT-V	53	625	91	400	800	I	SAT-V	144	540	81	370	730
	SAT-M	53	651	89	440	800		SAT-M	144	538	87	330	800
	SAT-T	53	1,276	163	860	1,570		SAT-T	144	1,077	151	740	1,530
	SAT-ES	53	8.19	1.64	5.00	12.00		SAT-ES	144	7.27	1.63	2.00	12.00
	SAT-MC	53	605	104	310	800		SAT-MC	144	523	91	310	770
	SAT-W	53	612	104	350	790		SAT-W	144	526	87	320	790
	HSGPA	53	3.82	0.46	2.00	4.30		HSGPA	144	3.37	0.59	1.00	4.30
FGPA	53	3.40	0.40	2.59	4.00	FGPA	144	3.13	0.64	0.36	4.00		
C	SAT-V	110	630	84	380	800	J	SAT-V	113	591	60	460	760
	SAT-M	110	619	70	410	730		SAT-M	113	634	67	420	800
	SAT-T	110	1,249	135	900	1,490		SAT-T	113	1,225	102	920	1,500
	SAT-ES	110	8.42	1.48	4.00	12.00		SAT-ES	113	7.57	1.48	3.00	12.00
	SAT-MC	110	602	106	310	800		SAT-MC	113	553	83	370	750
	SAT-W	110	610	101	340	800		SAT-W	113	555	76	370	750
	HSGPA	110	3.79	0.45	2.70	4.30		HSGPA	113	3.84	0.33	3.00	4.30
FGPA	110	3.31	0.54	1.29	4.00	FGPA	113	2.73	0.55	1.28	3.87		
D	SAT-V	61	633	65	490	760	K	SAT-V	64	622	82	360	800
	SAT-M	61	664	72	500	800		SAT-M	64	641	90	370	800
	SAT-T	61	1,297	120	990	1,530		SAT-T	64	1,262	153	790	1,600
	SAT-ES	61	8.57	1.35	5.00	12.00		SAT-ES	64	8.38	1.44	4.00	12.00
	SAT-MC	61	613	86	440	770		SAT-MC	64	604	105	310	790
	SAT-W	61	623	82	470	770		SAT-W	64	612	100	350	800
	HSGPA	61	3.92	0.31	3.00	4.30		HSGPA	64	3.77	0.49	2.30	4.30
FGPA	61	3.26	0.49	1.94	4.00	FGPA	64	3.34	0.59	1.00	4.00		
E	SAT-V	125	628	57	460	790	L	SAT-V	58	634	66	490	800
	SAT-M	125	633	52	450	800		SAT-M	58	672	63	560	800
	SAT-T	125	1,261	90	1,020	1,490		SAT-T	58	1,306	104	1,100	1,550
	SAT-ES	125	8.98	1.13	6.00	12.00		SAT-ES	58	8.21	1.47	4.00	12.00
	SAT-MC	125	618	81	310	790		SAT-MC	58	627	80	470	790
	SAT-W	125	631	76	360	800		SAT-W	58	629	82	490	800
	HSGPA	125	3.97	0.24	3.30	4.30		HSGPA	58	3.99	0.26	3.30	4.30
FGPA	125	3.54	0.34	2.31	4.00	FGPA	58	3.16	0.44	2.04	3.85		
F	SAT-V	79	619	73	470	800	M	SAT-V	185	596	79	290	790
	SAT-M	79	664	57	520	790		SAT-M	185	600	73	360	800
	SAT-T	79	1,283	109	1,040	1,510		SAT-T	185	1,197	132	680	1,510
	SAT-ES	79	7.99	1.42	3.00	11.00		SAT-ES	185	8.16	1.67	3.00	12.00
	SAT-MC	79	612	78	400	790		SAT-MC	185	572	99	310	800
	SAT-W	79	613	76	430	790		SAT-W	185	579	95	330	800
	HSGPA	79	3.92	0.38	2.70	4.30		HSGPA	185	3.82	0.41	2.30	4.30
FGPA	79	3.22	0.56	1.51	4.00	FGPA	185	3.12	0.65	0.75	4.00		
G	SAT-V	58	662	75	480	790							
	SAT-M	58	656	63	520	780							
	SAT-T	58	1,318	117	1,020	1,510							
	SAT-ES	58	8.78	1.39	6.00	12.00							
	SAT-MC	58	612	126	310	800							
	SAT-W	58	625	116	340	800							
	HSGPA	58	3.87	0.32	3.00	4.30							
FGPA	58	3.36	0.48	1.63	4.00								

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

**Table A7**

Descriptive Statistics for Sample with Complete Data Across All Predictors and English Composition GPA

<i>Institution</i>	<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Institution</i>	<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
A	SAT-V	43	513	83	330	680	H	SAT-V	113	552	57	380	690
	SAT-M	43	512	75	350	650		SAT-M	113	561	63	410	700
	SAT-T	43	1,025	138	690	1,310		SAT-T	113	1,113	95	850	1,360
	SAT-ES	43	7.19	1.55	3.00	10.00		SAT-ES	113	6.90	1.55	3.00	11.00
	SAT-MC	43	508	106	310	770		SAT-MC	113	504	74	350	690
	SAT-W	43	513	101	330	790		SAT-W	113	505	68	370	660
	HSGPA	43	3.38	0.54	2.30	4.30		HSGPA	113	3.57	0.46	2.30	4.30
	ECGPA	43	2.94	0.63	1.42	3.97		ECGPA	113	2.96	0.66	1.14	4.00
B	SAT-V	36	593	86	400	720	I	SAT-V	128	529	75	370	730
	SAT-M	36	634	94	440	800		SAT-M	128	528	83	330	800
	SAT-T	36	1,226	162	860	1,520		SAT-T	128	1,057	141	740	1,530
	SAT-ES	36	7.81	1.49	5.00	10.00		SAT-ES	128	7.15	1.59	2.00	11.00
	SAT-MC	36	570	94	310	730		SAT-MC	128	514	90	310	770
	SAT-W	36	576	91	350	750		SAT-W	128	517	84	320	790
	HSGPA	36	3.78	0.46	2.00	4.30		HSGPA	128	3.33	0.61	1.00	4.30
	ECGPA	36	3.30	0.37	2.59	4.00		ECGPA	128	3.08	0.65	0.36	4.00
C	SAT-V	46	633	94	380	800	J	SAT-V	113	587	56	460	720
	SAT-M	46	609	80	410	730		SAT-M	113	633	67	420	800
	SAT-T	46	1,242	157	900	1,490		SAT-T	113	1,220	101	920	1,500
	SAT-ES	46	8.41	1.54	4.00	12.00		SAT-ES	113	7.59	1.42	4.00	12.00
	SAT-MC	46	602	119	350	800		SAT-MC	113	549	80	370	730
	SAT-W	46	611	117	360	800		SAT-W	113	552	75	370	750
	HSGPA	46	3.78	0.48	2.70	4.30		HSGPA	113	3.84	0.33	3.00	4.30
	ECGPA	46	3.15	0.64	1.29	3.96		ECGPA	113	2.72	0.54	1.28	3.87
D	SAT-V	31	606	56	490	730	K	SAT-V	35	578	73	360	670
	SAT-M	31	633	71	500	800		SAT-M	35	615	91	370	760
	SAT-T	31	1,239	101	990	1,530		SAT-T	35	1,193	148	790	1,400
	SAT-ES	31	8.42	1.46	5.00	12.00		SAT-ES	35	8.23	1.19	6.00	11.00
	SAT-MC	31	584	77	470	750		SAT-MC	35	568	97	310	730
	SAT-W	31	593	72	490	750		SAT-W	35	577	89	350	720
	HSGPA	31	3.89	0.32	3.30	4.30		HSGPA	35	3.61	0.53	2.30	4.30
	ECGPA	31	3.19	0.51	1.97	3.96		ECGPA	35	3.24	0.52	1.92	3.90
E	SAT-V	93	633	56	460	790	L	SAT-V	41	619	59	490	790
	SAT-M	93	636	52	450	800		SAT-M	41	667	64	560	800
	SAT-T	93	1,269	88	1,030	1,490		SAT-T	41	1,286	101	1,100	1,490
	SAT-ES	93	8.94	1.12	6.00	11.00		SAT-ES	41	7.71	1.29	4.00	10.00
	SAT-MC	93	620	77	430	790		SAT-MC	41	609	75	470	750
	SAT-W	93	633	74	450	790		SAT-W	41	607	74	490	750
	HSGPA	93	3.96	0.25	3.30	4.30		HSGPA	41	3.98	0.23	3.30	4.30
	ECGPA	93	3.52	0.35	2.31	4.00		ECGPA	41	3.11	0.44	2.04	3.84
F	SAT-V	78	620	73	470	800	M	SAT-V	76	578	75	290	750
	SAT-M	78	663	57	520	790		SAT-M	76	591	79	360	760
	SAT-T	78	1,283	109	1,040	1,510		SAT-T	76	1,169	132	680	1,510
	SAT-ES	78	7.97	1.42	3.00	11.00		SAT-ES	76	7.97	1.64	3.00	12.00
	SAT-MC	78	612	79	400	790		SAT-MC	76	551	100	310	800
	SAT-W	78	613	76	430	790		SAT-W	76	559	94	330	800
	HSGPA	78	3.92	0.38	2.70	4.30		HSGPA	76	3.74	0.43	2.30	4.30
	ECGPA	78	3.21	0.57	1.51	4.00		ECGPA	76	3.05	0.68	0.75	4.00
G	SAT-V	58	662	75	480	790							
	SAT-M	58	656	63	520	780							
	SAT-T	58	1,318	117	1,020	1,510							
	SAT-ES	58	8.78	1.39	6.00	12.00							
	SAT-MC	58	612	126	310	800							
	SAT-W	58	625	116	340	800							
	HSGPA	58	3.87	0.32	3.00	4.30							
	ECGPA	58	3.36	0.48	1.63	4.00							

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

**Table A8**

SAT Mathematics and Verbal Scores for Sample and Population

Institution	SAT-V		SAT-M	
	Sample <sup>a</sup>	Population <sup>b</sup>	Sample <sup>a</sup>	Population <sup>b</sup>
A	511	440–540	515	440–550
B	625	530–630	651	550–660
C	630	590–680	619	590–680
D	633	570–660	664	600–700
E	628	570–640	633	580–670
F	619	NA <sup>c</sup>	664	NA <sup>c</sup>
G	662	620–730	656	610–700
H	562	520–610	560	530–620
I	540	420–680	538	420–680
J	591	570–650	634	600–680
K	622	570–660	641	600–700
L	634	600–710	672	630–720
M	596	520–620	600	540–640

<sup>a</sup> Mean Score.<sup>b</sup> Middle 50 percent score range for half of the 2003 freshman class.<sup>c</sup> Information for this institution was not presented in the *College Handbook*.**Table A9**

Corrected and Uncorrected Correlations for All Predictors with First-Year College GPA and English Composition GPA by Institution

Institution	Predictor	First-Year College GPA			English Composition GPA		
		N	Corrected	Uncorrected	N	Corrected	Uncorrected
A	SAT-V	47	0.18	0.13	43	0.33	0.12
	SAT-M	47	0.12	0.06	43	0.56	0.42
	SAT-T	47	0.16	0.11	43	0.48	0.30
	SAT-ES	47	0.06	0.04	43	0.15	0.07
	SAT-MC	47	0.17	0.13	43	0.47	0.30
	SAT-W	47	0.16	0.12	43	0.45	0.28
	HSGPA	47	0.19	0.16	43	0.70	0.62
B	SAT-V	53	0.52	0.42	36	-0.04	-0.03
	SAT-M	53	0.56	0.46	36	-0.02	-0.01
	SAT-T	53	0.58	0.49	36	-0.04	-0.03
	SAT-ES	53	0.39	0.36	36	0.20	0.21
	SAT-MC	53	0.59	0.51	36	0.04	0.05
	SAT-W	53	0.60	0.54	36	0.07	0.10
	HSGPA	53	0.39	0.35	36	0.19	0.19
C	SAT-V	110	0.55	0.39	46	0.45	0.43
	SAT-M	110	0.56	0.37	46	0.24	0.18
	SAT-T	110	0.60	0.44	46	0.37	0.35
	SAT-ES	110	0.16	0.17	46	0.33	0.31
	SAT-MC	110	0.54	0.41	46	0.43	0.40
	SAT-W	110	0.53	0.41	46	0.44	0.42
	HSGPA	110	0.52	0.47	46	0.37	0.36
D	SAT-V	61	0.70	0.48	31	0.52	0.31
	SAT-M	61	0.61	0.38	31	0.33	0.02
	SAT-T	61	0.70	0.49	31	0.46	0.18
	SAT-ES	61	0.40	0.32	31	0.14	0.04
	SAT-MC	61	0.66	0.46	31	0.56	0.40
	SAT-W	61	0.70	0.52	31	0.55	0.38
	HSGPA	61	0.36	0.29	31	0.19	0.11

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution. *Corrected* refers to correlations corrected for range restriction.



**Table A9** (continued)

Institution	Predictor	First-Year College GPA			English Composition GPA		
		N	Corrected	Uncorrected	N	Corrected	Uncorrected
E	SAT-V	125	0.48	0.24	93	0.18	0.11
	SAT-M	125	0.42	0.16	93	0.08	-0.01
	SAT-T	125	0.48	0.24	93	0.14	0.07
	SAT-ES	125	0.04	0.04	93	0.17	0.14
	SAT-MC	125	0.32	0.10	93	0.15	0.09
	SAT-W	125	0.33	0.11	93	0.17	0.11
	HSGPA	125	0.32	0.33	93	0.19	0.20
F	SAT-V	79	0.63	0.30	78	0.50	0.28
	SAT-M	79	0.78	0.52	78	0.50	0.25
	SAT-T	79	0.76	0.48	78	0.54	0.32
	SAT-ES	79	0.25	0.13	78	0.27	0.20
	SAT-MC	79	0.60	0.33	78	0.49	0.30
	SAT-W	79	0.62	0.35	78	0.51	0.33
	HSGPA	79	0.58	0.39	78	0.49	0.35
G	SAT-V	58	0.00	0.05	58	0.00	0.08
	SAT-M	58	-0.09	-0.06	58	-0.15	-0.11
	SAT-T	58	-0.05	0.00	58	-0.09	-0.01
	SAT-ES	58	0.07	0.10	58	0.08	0.14
	SAT-MC	58	0.16	0.21	58	0.09	0.15
	SAT-W	58	0.15	0.21	58	0.09	0.16
	HSGPA	58	0.33	0.38	58	0.19	0.25
H	SAT-V	151	0.26	0.15	113	0.13	0.10
	SAT-M	151	0.20	0.06	113	0.03	-0.05
	SAT-T	151	0.25	0.13	113	0.08	0.03
	SAT-ES	151	0.08	0.05	113	-0.03	-0.03
	SAT-MC	151	0.14	0.03	113	0.12	0.08
	SAT-W	151	0.14	0.03	113	0.10	0.06
	HSGPA	151	0.50	0.47	113	0.44	0.43
I	SAT-V	144	0.43	0.31	128	0.33	0.24
	SAT-M	144	0.41	0.30	128	0.22	0.12
	SAT-T	144	0.45	0.34	128	0.30	0.19
	SAT-ES	144	0.30	0.25	128	0.32	0.30
	SAT-MC	144	0.51	0.42	128	0.39	0.31
	SAT-W	144	0.53	0.45	128	0.42	0.36
	HSGPA	144	0.54	0.50	128	0.47	0.45
J	SAT-V	113	0.55	0.22	113	0.35	0.16
	SAT-M	113	0.66	0.41	113	0.34	0.15
	SAT-T	113	0.65	0.40	113	0.38	0.19
	SAT-ES	113	0.04	0.07	113	0.10	0.06
	SAT-MC	113	0.49	0.27	113	0.34	0.20
	SAT-W	113	0.48	0.26	113	0.34	0.21
	HSGPA	113	0.44	0.36	113	0.27	0.22
K	SAT-V	64	0.55	0.43	35	0.59	0.43
	SAT-M	64	0.45	0.32	35	0.37	0.21
	SAT-T	64	0.54	0.41	35	0.52	0.34
	SAT-ES	64	0.19	0.11	35	0.35	0.24
	SAT-MC	64	0.53	0.42	35	0.57	0.42
	SAT-W	64	0.53	0.42	35	0.59	0.46
	HSGPA	64	0.62	0.56	35	0.52	0.44
L	SAT-V	58	0.66	0.39	41	0.34	0.25
	SAT-M	58	0.63	0.31	41	0.11	-0.06
	SAT-T	58	0.69	0.44	41	0.24	0.11
	SAT-ES	58	0.49	0.26	41	0.16	0.09
	SAT-MC	58	0.58	0.26	41	0.21	0.05
	SAT-W	58	0.59	0.29	41	0.22	0.07
	HSGPA	58	0.00	0.13	41	0.03	0.08
M	SAT-V	185	0.68	0.51	76	0.42	0.27
	SAT-M	185	0.60	0.39	76	0.41	0.25
	SAT-T	185	0.69	0.52	76	0.45	0.30
	SAT-ES	185	0.30	0.22	76	0.19	0.15
	SAT-MC	185	0.60	0.45	76	0.41	0.31
	SAT-W	185	0.61	0.47	76	0.44	0.34
	HSGPA	185	0.40	0.31	76	0.36	0.34

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution. *Corrected* refers to correlations corrected for range restriction.

**Table A10**

Matrix of Corrected and Uncorrected Correlations for All Predictors and First-Year College GPA Criterion by Institution

Variable	N	SAT-V	SAT-M	SAT-T	SAT-ES	SAT-MC	SAT-W	HSGPA	FGPA
Institution A									
SAT-V	47		0.52	0.87	0.24	0.62	0.62	0.38	0.13
SAT-M	47	0.72		0.87	0.14	0.64	0.62	0.63	0.06
SAT-T	47	0.93	0.93		0.22	0.72	0.71	0.58	0.11
SAT-ES	47	0.33	0.25	0.31		0.35	0.50	0.22	0.04
SAT-MC	47	0.77	0.78	0.83	0.41		0.99	0.66	0.13
SAT-W	47	0.77	0.77	0.83	0.52	0.99		0.65	0.12
HSGPA	47	0.58	0.75	0.72	0.30	0.76	0.76		0.16
FGPA	47	0.18	0.12	0.16	0.06	0.17	0.16	0.19	
Institution B									
SAT-V	53		0.63	0.91	0.34	0.68	0.68	0.19	0.42
SAT-M	53	0.72		0.90	0.14	0.47	0.46	0.23	0.46
SAT-T	53	0.93	0.93		0.26	0.64	0.63	0.23	0.49
SAT-ES	53	0.38	0.20	0.31		0.38	0.55	0.45	0.36
SAT-MC	53	0.75	0.58	0.72	0.42		0.98	0.29	0.51
SAT-W	53	0.75	0.57	0.71	0.57	0.98		0.35	0.54
HSGPA	53	0.26	0.30	0.30	0.46	0.34	0.39		0.35
FGPA	53	0.52	0.56	0.58	0.39	0.59	0.60	0.39	
Institution C									
SAT-V	110		0.53	0.90	0.10	0.68	0.66	0.25	0.39
SAT-M	110	0.72		0.85	0.01	0.35	0.33	0.19	0.37
SAT-T	110	0.93	0.93		0.07	0.61	0.58	0.26	0.44
SAT-ES	110	0.11	0.03	0.07		0.22	0.40	0.13	0.17
SAT-MC	110	0.77	0.55	0.71	0.21		0.98	0.31	0.41
SAT-W	110	0.75	0.52	0.68	0.37	0.98		0.31	0.41
HSGPA	110	0.36	0.32	0.36	0.13	0.39	0.39		0.47
FGPA	110	0.55	0.56	0.60	0.16	0.54	0.53	0.52	
Institution D									
SAT-V	61		0.53	0.86	0.18	0.52	0.55	0.08	0.48
SAT-M	61	0.72		0.89	0.11	0.45	0.46	0.27	0.38
SAT-T	61	0.93	0.93		0.16	0.55	0.57	0.20	0.49
SAT-ES	61	0.30	0.23	0.29		0.05	0.30	0.05	0.32
SAT-MC	61	0.74	0.68	0.76	0.19		0.97	0.20	0.46
SAT-W	61	0.76	0.69	0.78	0.38	0.98		0.20	0.52
HSGPA	61	0.20	0.37	0.31	0.09	0.30	0.30		0.29
FGPA	61	0.70	0.61	0.70	0.40	0.66	0.70	0.36	
Institution E									
SAT-V	125		0.37	0.85	0.02	0.37	0.37	0.01	0.24
SAT-M	125	0.72		0.81	-0.02	0.21	0.20	0.04	0.16
SAT-T	125	0.93	0.93		0.00	0.35	0.35	0.03	0.24
SAT-ES	125	0.01	-0.03	-0.01		-0.04	0.17	0.05	0.04
SAT-MC	125	0.64	0.54	0.64	-0.03		0.98	0.08	0.10
SAT-W	125	0.65	0.53	0.63	0.14	0.98		0.09	0.11
HSGPA	125	0.06	0.09	0.08	0.05	0.10	0.11		0.33
FGPA	125	0.48	0.42	0.48	0.04	0.32	0.33	0.32	
Institution F									
SAT-V	79		0.38	0.87	0.07	0.54	0.52	0.23	0.30
SAT-M	79	0.72		0.78	0.12	0.33	0.35	0.27	0.52
SAT-T	79	0.93	0.93		0.11	0.54	0.54	0.30	0.48
SAT-ES	79	0.20	0.25	0.25		0.14	0.38	0.17	0.13
SAT-MC	79	0.74	0.65	0.75	0.24		0.96	0.15	0.33
SAT-W	79	0.73	0.66	0.75	0.43	0.98		0.18	0.35
HSGPA	79	0.48	0.53	0.54	0.25	0.39	0.42		0.39
FGPA	79	0.63	0.78	0.76	0.25	0.60	0.62	0.58	

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Corrected correlations are provided below the diagonal.

Uncorrected correlations are provided above the diagonal.

*Corrected* refers to correlations corrected for range restriction.

**Table A10** (continued)

<i>Variable</i>	<i>N</i>	<i>SAT-V</i>	<i>SAT-M</i>	<i>SAT-T</i>	<i>SAT-ES</i>	<i>SAT-MC</i>	<i>SAT-W</i>	<i>HSGPA</i>	<i>FGPA</i>
Institution G									
SAT-V	58		0.44	0.88	0.21	0.34	0.37	0.10	0.05
SAT-M	58	0.72		0.82	0.26	0.28	0.31	0.23	-0.06
SAT-T	58	0.93	0.93		0.28	0.37	0.41	0.19	0.00
SAT-ES	58	0.42	0.47	0.48		0.09	0.26	0.11	0.10
SAT-MC	58	0.54	0.52	0.57	0.26		0.98	0.01	0.21
SAT-W	58	0.58	0.56	0.62	0.41	0.99		0.02	0.21
HSGPA	58	0.29	0.40	0.37	0.23	0.16	0.18		0.38
FGPA	58	0.00	-0.09	-0.05	0.07	0.16	0.15	0.33	
Institution H									
SAT-V	151		0.35	0.81	0.13	0.46	0.46	0.22	0.15
SAT-M	151	0.72		0.83	-0.03	0.18	0.17	0.09	0.06
SAT-T	151	0.93	0.93		0.06	0.39	0.38	0.19	0.13
SAT-ES	151	0.18	0.06	0.13		0.19	0.42	-0.10	0.05
SAT-MC	151	0.68	0.51	0.64	0.22		0.97	0.07	0.03
SAT-W	151	0.67	0.49	0.63	0.41	0.98		0.04	0.03
HSGPA	151	0.37	0.28	0.35	-0.06	0.23	0.20		0.47
FGPA	151	0.26	0.20	0.25	0.08	0.14	0.14	0.50	
Institution I									
SAT-V	144		0.63	0.89	0.23	0.67	0.68	0.23	0.31
SAT-M	144	0.72		0.91	0.19	0.50	0.51	0.20	0.30
SAT-T	144	0.93	0.93		0.23	0.65	0.66	0.24	0.34
SAT-ES	144	0.32	0.27	0.32		0.22	0.42	0.19	0.25
SAT-MC	144	0.78	0.63	0.76	0.31		0.98	0.30	0.42
SAT-W	144	0.79	0.64	0.77	0.46	0.98		0.32	0.45
HSGPA	144	0.32	0.29	0.33	0.23	0.37	0.39		0.50
FGPA	144	0.43	0.41	0.45	0.30	0.51	0.53	0.54	
Institution J									
SAT-V	113		0.31	0.79	0.07	0.46	0.45	0.14	0.22
SAT-M	113	0.72		0.83	-0.10	0.16	0.13	0.12	0.41
SAT-T	113	0.93	0.93		-0.03	0.37	0.35	0.16	0.40
SAT-ES	113	0.03	-0.09	-0.03		0.03	0.27	0.04	0.07
SAT-MC	113	0.70	0.52	0.65	0.02		0.97	0.19	0.27
SAT-W	113	0.69	0.49	0.63	0.22	0.98		0.19	0.26
HSGPA	113	0.30	0.29	0.32	0.03	0.31	0.31		0.36
FGPA	113	0.55	0.66	0.65	0.04	0.49	0.48	0.44	
Institution K									
SAT-V	64		0.58	0.88	0.32	0.66	0.68	0.38	0.43
SAT-M	64	0.72		0.90	0.09	0.47	0.48	0.41	0.32
SAT-T	64	0.93	0.93		0.22	0.63	0.65	0.44	0.41
SAT-ES	64	0.40	0.20	0.32		0.26	0.42	0.02	0.11
SAT-MC	64	0.77	0.63	0.75	0.35		0.98	0.38	0.42
SAT-W	64	0.79	0.63	0.76	0.48	0.99		0.37	0.42
HSGPA	64	0.51	0.53	0.56	0.11	0.50	0.49		0.56
FGPA	64	0.55	0.45	0.54	0.19	0.53	0.53	0.62	

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Corrected correlations are provided below the diagonal.

Uncorrected correlations are provided above the diagonal.

*Corrected* refers to correlations corrected for range restriction.

**Table A10** (continued)

<i>Variable</i>	<i>N</i>	<i>SAT-V</i>	<i>SAT-M</i>	<i>SAT-T</i>	<i>SAT-ES</i>	<i>SAT-MC</i>	<i>SAT-W</i>	<i>HSGPA</i>	<i>FGPA</i>
Institution L									
SAT-V	58		0.29	0.81	0.28	0.65	0.62	-0.12	0.39
SAT-M	58	0.72		0.79	0.27	0.33	0.34	-0.05	0.31
SAT-T	58	0.93	0.93		0.34	0.61	0.60	-0.10	0.44
SAT-ES	58	0.55	0.55	0.59		0.41	0.60	0.05	0.26
SAT-MC	58	0.84	0.70	0.83	0.61		0.97	0.06	0.26
SAT-W	58	0.83	0.70	0.82	0.73	0.99		0.05	0.29
HSGPA	58	-0.21	-0.16	-0.20	-0.04	-0.08	-0.08		0.13
FGPA	58	0.66	0.63	0.69	0.49	0.58	0.59	0.00	
Institution M									
SAT-V	185		0.50	0.88	0.20	0.55	0.56	0.22	0.51
SAT-M	185	0.72		0.85	0.14	0.36	0.36	0.20	0.39
SAT-T	185	0.93	0.93		0.20	0.53	0.54	0.24	0.52
SAT-ES	185	0.29	0.25	0.29		0.21	0.41	0.04	0.22
SAT-MC	185	0.70	0.58	0.69	0.29		0.98	0.22	0.45
SAT-W	185	0.71	0.59	0.70	0.45	0.98		0.21	0.47
HSGPA	185	0.35	0.33	0.37	0.10	0.33	0.32		0.31
FGPA	185	0.68	0.60	0.69	0.30	0.60	0.61	0.40	

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Corrected correlations are provided below the diagonal.

Uncorrected correlations are provided above the diagonal.

*Corrected* refers to correlations corrected for range restriction.

**Table A11**

Matrix of Corrected and Uncorrected Correlations for All Predictors and English Composition GPA Criterion by Institution

Variable	N	SAT-V	SAT-M	SAT-T	SAT-ES	SAT-MC	SAT-W	HSGPA	ECGPA
Institution A									
SAT-V	43		0.53	0.89	0.22	0.63	0.62	0.37	0.12
SAT-M	43	0.72		0.86	0.15	0.65	0.63	0.59	0.42
SAT-T	43	0.93	0.93		0.22	0.73	0.72	0.54	0.30
SAT-ES	43	0.31	0.26	0.30		0.37	0.51	0.23	0.07
SAT-MC	43	0.77	0.81	0.85	0.42		0.99	0.64	0.30
SAT-W	43	0.77	0.80	0.84	0.52	0.99		0.64	0.28
HSGPA	43	0.59	0.75	0.72	0.31	0.77	0.77		0.62
ECGPA	43	0.33	0.56	0.48	0.15	0.47	0.45	0.70	
Institution B									
SAT-V	36		0.63	0.89	0.23	0.61	0.60	0.01	-0.03
SAT-M	36	0.72		0.91	0.02	0.42	0.40	0.17	-0.01
SAT-T	36	0.93	0.93		0.13	0.56	0.55	0.10	-0.03
SAT-ES	36	0.27	0.08	0.19		0.31	0.48	0.43	0.21
SAT-MC	36	0.70	0.54	0.67	0.35		0.98	0.12	0.05
SAT-W	36	0.70	0.52	0.65	0.49	0.99		0.19	0.10
HSGPA	36	0.04	0.18	0.12	0.42	0.13	0.19		0.19
ECGPA	36	-0.04	-0.02	-0.04	0.20	0.04	0.07	0.19	
Institution C									
SAT-V	46		0.62	0.92	0.28	0.77	0.75	0.28	0.43
SAT-M	46	0.72		0.88	0.24	0.61	0.59	0.17	0.18
SAT-T	46	0.93	0.93		0.29	0.77	0.76	0.26	0.35
SAT-ES	46	0.35	0.32	0.37		0.36	0.51	0.33	0.31
SAT-MC	46	0.83	0.73	0.84	0.42		0.98	0.46	0.40
SAT-W	46	0.82	0.72	0.82	0.54	0.99		0.47	0.42
HSGPA	46	0.32	0.22	0.29	0.36	0.47	0.48		0.36
ECGPA	46	0.45	0.24	0.37	0.33	0.43	0.44	0.37	
Institution D									
SAT-V	31		0.26	0.73	0.16	0.45	0.51	-0.06	0.31
SAT-M	31	0.72		0.85	0.01	0.25	0.25	0.39	0.02
SAT-T	31	0.93	0.93		0.09	0.42	0.46	0.24	0.18
SAT-ES	31	0.28	0.18	0.25		-0.05	0.25	-0.19	0.04
SAT-MC	31	0.74	0.62	0.73	0.12		0.95	0.10	0.40
SAT-W	31	0.78	0.64	0.77	0.34	0.97		0.03	0.38
HSGPA	31	0.15	0.44	0.32	-0.13	0.22	0.17		0.11
ECGPA	31	0.52	0.33	0.46	0.14	0.56	0.55	0.19	
Institution E									
SAT-V	93		0.32	0.83	0.14	0.36	0.38	-0.03	0.11
SAT-M	93	0.72		0.80	0.11	0.24	0.25	0.03	-0.01
SAT-T	93	0.93	0.93		0.16	0.37	0.39	0.00	0.07
SAT-ES	93	0.33	0.31	0.35		0.05	0.26	0.06	0.14
SAT-MC	93	0.66	0.60	0.68	0.23		0.97	0.01	0.09
SAT-W	93	0.69	0.61	0.70	0.39	0.98		0.02	0.11
HSGPA	93	-0.02	0.03	0.01	0.06	0.01	0.02		0.20
ECGPA	93	0.18	0.08	0.14	0.17	0.15	0.17	0.19	

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Corrected correlations are provided below the diagonal.

Uncorrected correlations are provided above the diagonal.

Corrected refers to correlations corrected for range restriction.

**Table A11** (continued)

<i>Variable</i>	<i>N</i>	<i>SAT-V</i>	<i>SAT-M</i>	<i>SAT-T</i>	<i>SAT-ES</i>	<i>SAT-MC</i>	<i>SAT-W</i>	<i>HSGPA</i>	<i>ECGPA</i>
Institution F									
SAT-V	78		0.41	0.88	0.08	0.54	0.52	0.25	0.28
SAT-M	78	0.72		0.79	0.11	0.34	0.36	0.26	0.25
SAT-T	78	0.93	0.93		0.11	0.54	0.54	0.30	0.32
SAT-ES	78	0.20	0.24	0.24		0.14	0.39	0.17	0.20
SAT-MC	78	0.74	0.65	0.75	0.24		0.97	0.15	0.30
SAT-W	78	0.73	0.66	0.75	0.42	0.98		0.19	0.33
HSGPA	78	0.48	0.51	0.53	0.24	0.39	0.42		0.35
ECGPA	78	0.50	0.50	0.54	0.27	0.49	0.51	0.49	
Institution G									
SAT-V	58		0.44	0.88	0.21	0.34	0.37	0.10	0.08
SAT-M	58	0.72		0.82	0.26	0.28	0.31	0.23	-0.11
SAT-T	58	0.93	0.93		0.28	0.37	0.41	0.19	-0.01
SAT-ES	58	0.42	0.47	0.48		0.09	0.26	0.11	0.14
SAT-MC	58	0.54	0.52	0.57	0.26		0.98	0.01	0.15
SAT-W	58	0.58	0.56	0.62	0.41	0.99		0.02	0.16
HSGPA	58	0.29	0.40	0.37	0.23	0.16	0.18		0.25
ECGPA	58	0.00	-0.15	-0.09	0.08	0.09	0.09	0.19	
Institution H									
SAT-V	113		0.25	0.77	0.03	0.43	0.41	0.14	0.10
SAT-M	113	0.72		0.81	-0.08	0.14	0.12	0.03	-0.05
SAT-T	113	0.93	0.93		-0.04	0.35	0.32	0.10	0.03
SAT-ES	113	-0.03	-0.10	-0.07		0.15	0.38	-0.12	-0.03
SAT-MC	113	0.69	0.52	0.65	0.09		0.97	0.03	0.08
SAT-W	113	0.66	0.49	0.62	0.29	0.98		-0.01	0.06
HSGPA	113	0.26	0.18	0.24	-0.12	0.15	0.12		0.43
ECGPA	113	0.13	0.03	0.08	-0.03	0.12	0.10	0.44	
Institution I									
SAT-V	128		0.59	0.88	0.11	0.64	0.63	0.18	0.24
SAT-M	128	0.72		0.90	0.06	0.46	0.45	0.16	0.12
SAT-T	128	0.93	0.93		0.10	0.61	0.60	0.19	0.19
SAT-ES	128	0.16	0.12	0.15		0.16	0.35	0.18	0.30
SAT-MC	128	0.78	0.63	0.76	0.20		0.98	0.27	0.31
SAT-W	128	0.77	0.62	0.75	0.36	0.99		0.29	0.36
HSGPA	128	0.28	0.25	0.28	0.20	0.33	0.35		0.45
ECGPA	128	0.33	0.22	0.30	0.32	0.39	0.42	0.47	
Institution J									
SAT-V	113		0.33	0.78	0.15	0.40	0.42	0.10	0.16
SAT-M	113	0.72		0.85	-0.08	0.15	0.12	0.10	0.15
SAT-T	113	0.93	0.93		0.03	0.32	0.31	0.12	0.19
SAT-ES	113	0.21	0.04	0.13		0.11	0.34	0.03	0.06
SAT-MC	113	0.66	0.49	0.62	0.18		0.97	0.17	0.20
SAT-W	113	0.67	0.47	0.61	0.36	0.98		0.17	0.21
HSGPA	113	0.24	0.23	0.25	0.06	0.26	0.26		0.22
ECGPA	113	0.35	0.34	0.38	0.10	0.34	0.34	0.27	

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Corrected correlations are provided below the diagonal.

Uncorrected correlations are provided above the diagonal.

*Corrected* refers to correlations corrected for range restriction.

**Table A11** (continued)

<i>Variable</i>	<i>N</i>	<i>SAT-V</i>	<i>SAT-M</i>	<i>SAT-T</i>	<i>SAT-ES</i>	<i>SAT-MC</i>	<i>SAT-W</i>	<i>HSGPA</i>	<i>ECGPA</i>
Institution K									
SAT-V	35		0.62	0.87	0.29	0.64	0.66	0.33	0.43
SAT-M	35	0.72		0.92	0.05	0.51	0.50	0.32	0.21
SAT-T	35	0.93	0.93		0.18	0.63	0.64	0.36	0.34
SAT-ES	35	0.42	0.19	0.33		0.11	0.27	0.16	0.24
SAT-MC	35	0.78	0.65	0.77	0.27		0.99	0.34	0.42
SAT-W	35	0.80	0.65	0.78	0.39	0.99		0.36	0.46
HSGPA	35	0.47	0.44	0.49	0.25	0.47	0.48		0.44
ECGPA	35	0.59	0.37	0.52	0.35	0.57	0.59	0.52	
Institution L									
SAT-V	41		0.35	0.81	0.12	0.62	0.58	-0.05	0.25
SAT-M	41	0.72		0.84	0.33	0.39	0.44	-0.25	-0.06
SAT-T	41	0.93	0.93		0.28	0.61	0.62	-0.19	0.11
SAT-ES	41	0.39	0.53	0.50		0.26	0.47	0.02	0.09
SAT-MC	41	0.85	0.73	0.85	0.47		0.97	0.05	0.05
SAT-W	41	0.83	0.75	0.85	0.60	0.99		0.05	0.07
HSGPA	41	-0.25	-0.40	-0.35	-0.13	-0.19	-0.19		0.08
ECGPA	41	0.34	0.11	0.24	0.16	0.21	0.22	0.03	
Institution M									
SAT-V	76		0.48	0.85	0.15	0.42	0.44	0.12	0.27
SAT-M	76	0.72		0.87	0.05	0.25	0.25	0.07	0.25
SAT-T	76	0.93	0.93		0.12	0.39	0.40	0.11	0.30
SAT-ES	76	0.21	0.13	0.18		0.12	0.32	-0.06	0.15
SAT-MC	76	0.58	0.46	0.55	0.17		0.98	0.18	0.31
SAT-W	76	0.60	0.46	0.57	0.35	0.98		0.15	0.34
HSGPA	76	0.18	0.14	0.17	-0.04	0.22	0.20		0.34
ECGPA	76	0.42	0.41	0.45	0.19	0.41	0.44	0.36	

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Corrected correlations are provided below the diagonal.

Uncorrected correlations are provided above the diagonal.

*Corrected* refers to correlations corrected for range restriction.

**Table A12**

Weighted-Average Corrected and Uncorrected Correlation Matrix for All Predictors and First-Year College GPA Across Institutions

<i>Variable</i>	<i>N</i>	<i>SAT-V</i>	<i>SAT-M</i>	<i>SAT-T</i>	<i>SAT-ES</i>	<i>SAT-MC</i>	<i>SAT-W</i>	<i>HSGPA</i>	<i>FGPA</i>
SAT-V	1,248		0.46	0.86	0.17	0.55	0.55	0.18	0.32
SAT-M	1,248	0.72		0.85	0.08	0.34	0.34	0.19	0.29
SAT-T	1,248	0.93	0.93		0.14	0.52	0.52	0.21	0.35
SAT-ES	1,248	0.24	0.17	0.22		0.18	0.38	0.08	0.16
SAT-MC	1,248	0.72	0.59	0.70	0.24		0.98	0.21	0.30
SAT-W	1,248	0.72	0.58	0.70	0.40	0.98		0.21	0.32
HSGPA	1,248	0.30	0.31	0.33	0.12	0.30	0.31		0.38
FGPA	1,248	0.49	0.47	0.51	0.20	0.45	0.46	0.43	

Note: Corrected correlations are provided below the diagonal.

Uncorrected correlations are provided above the diagonal.

*Corrected* refers to correlations corrected for range restriction.

**Table A13**

Weighted-Average Corrected and Uncorrected Correlation Matrix for All Predictors and English Composition GPA Across Institutions

<i>Variable</i>	<i>N</i>	<i>SAT-V</i>	<i>SAT-M</i>	<i>SAT-T</i>	<i>SAT-ES</i>	<i>SAT-MC</i>	<i>SAT-W</i>	<i>HSGPA</i>	<i>ECGPA</i>
SAT-V	891		0.43	0.84	0.14	0.50	0.51	0.14	0.20
SAT-M	891	0.72		0.85	0.07	0.32	0.32	0.14	0.10
SAT-T	891	0.93	0.93		0.12	0.48	0.48	0.16	0.17
SAT-ES	891	0.23	0.18	0.22		0.15	0.36	0.08	0.14
SAT-MC	891	0.71	0.59	0.70	0.23		0.98	0.17	0.22
SAT-W	891	0.71	0.59	0.70	0.39	0.98		0.18	0.24
HSGPA	891	0.24	0.24	0.26	0.11	0.25	0.25		0.32
ECGPA	891	0.30	0.23	0.28	0.18	0.31	0.32	0.35	

Note: Corrected correlations are provided below the diagonal.  
 Uncorrected correlations are provided above the diagonal.  
 Corrected refers to correlations corrected for range restriction.

**Table A14**

Incremental Validity Results for Predicting First-Year College GPA by Institution: Model A

<i>Institution</i>	<i>Step</i>	<i>N</i>	<i>Adjusted</i>				<i>Unadjusted</i>			
			<i>Corrected</i>		<i>Uncorrected</i>		<i>Corrected</i>		<i>Uncorrected</i>	
			<i>R</i>	$\Delta R$	<i>R</i>	$\Delta R$	<i>R</i>	$\Delta R$	<i>R</i>	$\Delta R$
A	1	47	0.00		0.00		0.23		0.20	
	2	47	0.00	0.00	0.00	0.00	0.23	0.00	0.20	0.00
B	1	53	0.56		0.46		0.63		0.54	
	2	53	0.60	0.04	0.51	0.05	0.67	0.05	0.61	0.06
C	1	110	0.66		0.54		0.69		0.57	
	2	110	0.67	0.00	0.55	0.01	0.70	0.01	0.59	0.02
D	1	61	0.70		0.48		0.74		0.55	
	2	61	0.73	0.02	0.53	0.05	0.77	0.03	0.61	0.06
E	1	125	0.54		0.35		0.57		0.41	
	2	125	0.53	-0.01	0.33	-0.02	0.57	0.00	0.41	0.00
F	1	79	0.79		0.54		0.81		0.58	
	2	79	0.79	0.00	0.54	0.00	0.81	0.01	0.60	0.02
G	1	58	0.30		0.29		0.42		0.42	
	2	58	0.36	0.06	0.35	0.06	0.49	0.07	0.48	0.07
H	1	151	0.48		0.44		0.51		0.47	
	2	151	0.47	-0.01	0.43	-0.01	0.51	0.00	0.47	0.00
I	1	144	0.59		0.53		0.61		0.55	
	2	144	0.62	0.03	0.56	0.03	0.64	0.03	0.59	0.04
J	1	113	0.69		0.48		0.71		0.52	
	2	113	0.70	0.00	0.49	0.01	0.72	0.01	0.54	0.02
K	1	64	0.63		0.55		0.67		0.60	
	2	64	0.63	-0.01	0.54	-0.01	0.68	0.01	0.61	0.01
L	1	58	0.67		0.37		0.71		0.47	
	2	58	0.66	-0.01	0.33	-0.04	0.71	0.00	0.47	0.00
M	1	185	0.70		0.55		0.71		0.57	
	2	185	0.72	0.01	0.57	0.02	0.73	0.02	0.59	0.03

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Step 1 = SAT-V + SAT-M + HSGPA

Step 2 = SAT-V + SAT-M + HSGPA + SAT-W

Corrected refers to correlations corrected for range restriction. Adjusted refers to correlations adjusted for shrinkage (Rozeboom Formula 8).



**Table A15**

Incremental Validity Results for Predicting First-Year College GPA by Institution: Model B

Institution	Step	N	Adjusted				Unadjusted			
			Corrected		Uncorrected		Corrected		Uncorrected	
			R	$\Delta R$	R	$\Delta R$	R	$\Delta R$	R	$\Delta R$
A	1	47	0.00		0.00		0.19		0.16	
	2	47	0.00	0.00	0.00	0.00	0.19	0.00	0.16	0.00
B	1	53	0.58		0.49		0.62		0.54	
	2	53	0.61	0.02	0.52	0.03	0.66	0.04	0.59	0.05
C	1	110	0.67		0.55		0.69		0.57	
	2	110	0.67	0.00	0.55	0.00	0.69	0.01	0.58	0.01
D	1	61	0.70		0.48		0.72		0.53	
	2	61	0.73	0.03	0.54	0.06	0.76	0.04	0.60	0.07
E	1	125	0.54		0.36		0.56		0.40	
	2	125	0.53	-0.01	0.34	-0.02	0.56	0.00	0.40	0.00
F	1	79	0.77		0.51		0.79		0.54	
	2	79	0.77	0.00	0.50	-0.01	0.79	0.00	0.55	0.01
G	1	58	0.29		0.29		0.38		0.38	
	2	58	0.35	0.06	0.35	0.06	0.46	0.08	0.46	0.08
H	1	151	0.49		0.45		0.51		0.47	
	2	151	0.48	-0.01	0.44	-0.01	0.51	0.00	0.47	0.00
I	1	144	0.60		0.54		0.61		0.55	
	2	144	0.62	0.02	0.57	0.03	0.64	0.03	0.59	0.04
J	1	113	0.68		0.47		0.70		0.50	
	2	113	0.68	0.00	0.47	-0.01	0.70	0.00	0.51	0.01
K	1	64	0.63		0.55		0.66		0.59	
	2	64	0.63	0.00	0.55	0.00	0.67	0.02	0.61	0.02
L	1	58	0.68		0.41		0.71		0.47	
	2	58	0.67	-0.01	0.37	-0.04	0.71	0.00	0.47	0.00
M	1	185	0.70		0.54		0.71		0.56	
	2	185	0.72	0.02	0.57	0.03	0.73	0.02	0.59	0.04

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Step 1 = SAT-T + HSGPA

Step 2 = SAT-T + HSGPA + SAT-W

*Corrected* refers to correlations corrected for range restriction. *Adjusted* refers to correlations adjusted for shrinkage (Rozeboom Formula 8).

**Table A16**

## Incremental Validity Results for Predicting First-Year College GPA by Institution: Model C

Institution	Step	N	Adjusted				Unadjusted			
			Corrected		Uncorrected		Corrected		Uncorrected	
			R	$\Delta R$	R	$\Delta R$	R	$\Delta R$	R	$\Delta R$
A	1	47	0.00		0.00		0.19		0.16	
	2	47	0.00	0.00	0.00	0.00	0.23	0.04	0.20	0.04
	3	47	0.00	0.00	0.00	0.00	0.23	0.00	0.20	0.00
B	1	53	0.34		0.29		0.39		0.35	
	2	53	0.56	0.22	0.46	0.16	0.63	0.24	0.54	0.20
	3	53	0.60	0.04	0.51	0.05	0.67	0.05	0.61	0.06
C	1	110	0.51		0.45		0.52		0.47	
	2	110	0.66	0.15	0.54	0.08	0.69	0.16	0.57	0.10
	3	110	0.67	0.00	0.55	0.01	0.70	0.01	0.59	0.02
D	1	61	0.32		0.23		0.36		0.29	
	2	61	0.70	0.39	0.48	0.25	0.74	0.38	0.55	0.26
	3	61	0.73	0.02	0.53	0.05	0.77	0.03	0.61	0.06
E	1	125	0.30		0.30		0.32		0.33	
	2	125	0.54	0.24	0.35	0.05	0.57	0.25	0.41	0.08
	3	125	0.53	-0.01	0.33	-0.02	0.57	0.00	0.41	0.00
F	1	79	0.56		0.36		0.58		0.39	
	2	79	0.79	0.23	0.54	0.17	0.81	0.23	0.58	0.19
	3	79	0.79	0.00	0.54	0.00	0.81	0.01	0.60	0.02
G	1	58	0.28		0.33		0.33		0.38	
	2	58	0.30	0.02	0.29	-0.05	0.42	0.09	0.42	0.04
	3	58	0.36	0.06	0.35	0.06	0.49	0.07	0.48	0.07
H	1	151	0.49		0.46		0.50		0.47	
	2	151	0.48	-0.01	0.44	-0.02	0.51	0.01	0.47	0.00
	3	151	0.47	-0.01	0.43	-0.01	0.51	0.00	0.47	0.00
I	1	144	0.53		0.49		0.54		0.50	
	2	144	0.59	0.06	0.53	0.03	0.61	0.07	0.55	0.05
	3	144	0.62	0.03	0.56	0.03	0.64	0.03	0.59	0.04
J	1	113	0.43		0.34		0.44		0.36	
	2	113	0.69	0.27	0.48	0.14	0.71	0.27	0.52	0.16
	3	113	0.70	0.00	0.49	0.01	0.72	0.01	0.54	0.02
K	1	64	0.60		0.54		0.62		0.56	
	2	64	0.63	0.03	0.55	0.01	0.67	0.06	0.60	0.05
	3	64	0.63	-0.01	0.54	-0.01	0.68	0.01	0.61	0.01
L	1	58	0.00		0.00		0.00		0.13	
	2	58	0.67	0.67	0.37	0.37	0.71	0.71	0.47	0.35
	3	58	0.66	-0.01	0.33	-0.04	0.71	0.00	0.47	0.00
M	1	185	0.39		0.29		0.40		0.31	
	2	185	0.70	0.31	0.55	0.25	0.71	0.31	0.57	0.26
	3	185	0.72	0.01	0.57	0.02	0.73	0.02	0.59	0.03

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Step 1 = HSGPA

Step 2 = HSGPA + SAT-V + SAT-M

Step 3 = HSGPA + SAT-V + SAT-M + SAT-W

Corrected refers to correlations corrected for range restriction. Adjusted refers to correlations adjusted for shrinkage (Rozeboom Formula 8).

**Table A17**

Incremental Validity Results for Predicting First-Year College GPA by Institution: Model D

Institution	Step	N	Adjusted				Unadjusted			
			Corrected		Uncorrected		Corrected		Uncorrected	
			R	$\Delta R$	R	$\Delta R$	R	$\Delta R$	R	$\Delta R$
A	1	47	0.00		0.00		0.16		0.12	
	2	47	0.00	0.00	0.00	0.00	0.19	0.03	0.16	0.04
	3	47	0.00	0.00	0.00	0.00	0.23	0.03	0.20	0.04
B	1	53	0.58		0.51		0.60		0.54	
	2	53	0.59	0.00	0.51	0.00	0.63	0.02	0.56	0.03
	3	53	0.60	0.02	0.51	0.00	0.67	0.05	0.61	0.04
C	1	110	0.52		0.39		0.53		0.41	
	2	110	0.62	0.10	0.52	0.13	0.63	0.10	0.55	0.14
	3	110	0.67	0.05	0.55	0.02	0.70	0.06	0.59	0.04
D	1	61	0.69		0.50		0.70		0.52	
	2	61	0.70	0.01	0.51	0.01	0.72	0.02	0.56	0.03
	3	61	0.73	0.03	0.53	0.02	0.77	0.05	0.61	0.05
E	1	125	0.30		0.00		0.33		0.11	
	2	125	0.40	0.10	0.29	0.29	0.44	0.11	0.34	0.23
	3	125	0.53	0.12	0.33	0.04	0.57	0.13	0.41	0.07
F	1	79	0.61		0.32		0.62		0.35	
	2	79	0.69	0.08	0.44	0.12	0.71	0.09	0.49	0.13
	3	79	0.79	0.10	0.54	0.10	0.81	0.10	0.60	0.11
G	1	58	0.00		0.10		0.15		0.21	
	2	58	0.24	0.24	0.35	0.25	0.35	0.19	0.43	0.22
	3	58	0.36	0.12	0.35	0.00	0.49	0.14	0.48	0.06
H	1	151	0.08		0.00		0.14		0.03	
	2	151	0.48	0.40	0.45	0.45	0.50	0.36	0.47	0.44
	3	151	0.47	-0.02	0.43	-0.02	0.51	0.00	0.47	0.00
I	1	144	0.52		0.43		0.53		0.45	
	2	144	0.63	0.11	0.57	0.14	0.64	0.11	0.59	0.14
	3	144	0.62	-0.01	0.56	-0.01	0.64	0.00	0.59	0.00
J	1	113	0.47		0.23		0.48		0.26	
	2	113	0.55	0.08	0.37	0.15	0.57	0.09	0.41	0.15
	3	113	0.70	0.14	0.49	0.12	0.72	0.15	0.54	0.13
K	1	64	0.51		0.39		0.53		0.42	
	2	64	0.64	0.13	0.57	0.18	0.67	0.14	0.60	0.18
	3	64	0.63	-0.02	0.54	-0.03	0.68	0.01	0.61	0.01
L	1	58	0.57		0.23		0.59		0.29	
	2	58	0.55	-0.02	0.19	-0.05	0.59	0.00	0.31	0.02
	3	58	0.66	0.10	0.33	0.14	0.71	0.12	0.47	0.16
M	1	185	0.61		0.46		0.61		0.47	
	2	185	0.64	0.03	0.50	0.04	0.65	0.04	0.51	0.05
	3	185	0.72	0.07	0.57	0.07	0.73	0.08	0.59	0.08

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Step 1 = SAT-W

Step 2 = SAT-W + HSGPA

Step 3 = SAT-W + HSGPA + SAT-V + SAT-M

*Corrected* refers to correlations corrected for range restriction. *Adjusted* refers to correlations adjusted for shrinkage (Rozeboom Formula 8).

**Table A18**

## Incremental Validity Results for Predicting First-Year College GPA by Institution: Model E

Institution	Step	N	Adjusted				Unadjusted			
			Corrected		Uncorrected		Corrected		Uncorrected	
			R	$\Delta R$	R	$\Delta R$	R	$\Delta R$	R	$\Delta R$
A	1	47	0.00		0.00		0.18		0.13	
	2	47	0.00	0.00	0.00	0.00	0.18	0.01	0.15	0.01
	3	47	0.00	0.00	0.00	0.00	0.23	0.04	0.20	0.05
B	1	53	0.54		0.42		0.58		0.49	
	2	53	0.61	0.07	0.52	0.09	0.66	0.07	0.59	0.10
	3	53	0.60	0.00	0.51	0.00	0.67	0.01	0.61	0.02
C	1	110	0.58		0.40		0.60		0.44	
	2	110	0.60	0.02	0.44	0.04	0.63	0.03	0.48	0.05
	3	110	0.67	0.07	0.55	0.11	0.70	0.07	0.59	0.11
D	1	61	0.69		0.45		0.71		0.50	
	2	61	0.72	0.03	0.51	0.07	0.75	0.04	0.58	0.07
	3	61	0.73	0.01	0.53	0.01	0.77	0.02	0.61	0.03
E	1	125	0.46		0.18		0.49		0.25	
	2	125	0.45	-0.01	0.12	-0.05	0.49	0.00	0.25	0.00
	3	125	0.53	0.08	0.33	0.21	0.57	0.08	0.41	0.16
F	1	79	0.77		0.49		0.79		0.53	
	2	79	0.78	0.00	0.50	0.00	0.79	0.01	0.55	0.02
	3	79	0.79	0.02	0.54	0.04	0.81	0.02	0.60	0.05
G	1	58	0.00		0.00		0.13		0.11	
	2	58	0.00	0.00	0.00	0.00	0.26	0.13	0.25	0.14
	3	58	0.36	0.36	0.35	0.35	0.49	0.23	0.48	0.23
H	1	151	0.21		0.00		0.26		0.15	
	2	151	0.18	-0.03	0.00	0.00	0.27	0.00	0.16	0.01
	3	151	0.47	0.29	0.43	0.43	0.51	0.24	0.47	0.31
I	1	144	0.43		0.30		0.45		0.34	
	2	144	0.51	0.08	0.42	0.11	0.53	0.08	0.46	0.11
	3	144	0.62	0.11	0.56	0.14	0.64	0.11	0.59	0.14
J	1	113	0.65		0.39		0.66		0.42	
	2	113	0.66	0.01	0.42	0.03	0.68	0.02	0.46	0.04
	3	113	0.70	0.04	0.49	0.08	0.72	0.04	0.54	0.08
K	1	64	0.51		0.37		0.55		0.43	
	2	64	0.51	0.00	0.38	0.01	0.57	0.02	0.47	0.03
	3	64	0.63	0.11	0.54	0.17	0.68	0.11	0.61	0.15
L	1	58	0.67		0.37		0.70		0.44	
	2	58	0.65	-0.01	0.32	-0.04	0.70	0.00	0.44	0.00
	3	58	0.66	0.00	0.33	0.01	0.71	0.01	0.47	0.03
M	1	185	0.69		0.52		0.70		0.53	
	2	185	0.71	0.02	0.55	0.03	0.72	0.02	0.57	0.04
	3	185	0.72	0.01	0.57	0.02	0.73	0.01	0.59	0.02

Note: Due to the relatively small sample sizes, results for individual institutions should be interpreted with caution.

Step 1 = SAT-V + SAT-M

Step 2 = SAT-V + SAT-M + SAT-W

Step 3 = SAT-V + SAT-M + SAT-W + HSGPA

*Corrected* refers to correlations corrected for range restriction. *Adjusted* refers to correlations adjusted for shrinkage (Rozeboom Formula 8).



