

Use of the SAT in Advisement and Placement: What the Research Tells Us

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Today's Topics

- Validity (a very mini-review)
 - National SAT Validity Study
 - Upcoming National Research - Placement Validity Study
 - Local Validity Research (ACES)
 - Admission Validity Studies (and Advisement)
 - Placement Validity Studies
- Useful College Board Web Sites
 - Validity Handbook
 - Research homepage

Validity

- Test validity is the extent to which inferences, conclusions, and decisions made on the basis of test scores are appropriate and meaningful.
- The use of tests for specific purposes (college admission, course placement, promotion, services, etc.) first requires validation of the test.

Conducting Validity Research

NATIONAL VALIDITY RESEARCH

- Responsible test developers and publishers must be able to demonstrate that it is possible to use the sample of behaviors measured by a test to make valid inferences about an examinee's ability to perform tasks that represent the larger domain of interest.
 - (e.g. SAT predicts FYGPA; SAT is related to other academic measures, etc.)

LOCAL VALIDITY RESEARCH

- Institutions should also gather evidence that the admission or placement decisions being made are fair or that the variables, such as test scores, are valid for their intended purpose.

The National SAT Validity Study

The College Board continues to examine the validity of the SAT across a national sample of four-year institutions and students, with outcomes including FYGPA, course grades, retention to the 2nd Year, retention to the 3rd year, etc.

Data Collected as of February 2009

Fall 2006 entering cohort – 1st year data; 2nd year data

Fall 2007 entering cohort – 1st year data

SAT Validity Study results - snapshot

- Admission Validity Study

SAMPLE

110 colleges participating in Validity Study (N = 196,364)

- Schools provided first year performance data for Fall 2006 cohort through the Admitted Class Evaluation Service™ (ACES™) portal

Restrict sample to students who completed the New SAT, submitted self reported High School GPA, and had a valid FYGPA (N=151,316)



Admission Validity Results (1 of 2)

- SAT Writing has the highest correlation with FYGPA among the three individual SAT sections (*Adj. r* = 0.51).
 - In fact, SAT Writing alone has the same correlation with FYGPA as does SAT Critical Reading and SAT Math taken together.
- As expected, the best combination of predictors of FYGPA is HSGPA and SAT scores (*Adj. r* = 0.62), reinforcing the recommendation that colleges use both HSGPA and SAT scores to make the best predictions of student success.

Admission Validity Results (2 of 2)

- The adjusted correlation of HSGPA and FYGPA is 0.54, which is only slightly higher than the multiple correlation of the SAT (CR, M, and W combined) with FYGPA (Adj. $r = 0.53$).
- The increment in predictive validity attributable to the SAT when HSGPA is taken into account is 0.08.
- The increment in validity attributable to the Writing section over and above the CR and M sections is 0.02. When HSGPA is also considered, the increment in validity attributable to the Writing section is 0.01.

Future National Research – Placement Validity

Coming soon...

- What is the relationship between performance on the SAT and grades in first-year mathematics and English courses?
- What percentage of students would be correctly placed if the SAT was used for course placement in first-year mathematics and English courses?

Local Validity Research - ACES™

- The Admitted Class Evaluation Service™ (ACES) is a free online service that predicts how admitted students will perform at your institution generally, and how successful they can be in specific classes.
 - Admission Validity
 - Placement Validity

By conducting an ACES admission validity study, you can also get useful information to aid in advisement at your institution.

How ACES works...

(ACES - <http://professionals.collegeboard.com/higher-ed/validity/aces>)

- You design your study for your institution (choose predictors, criterion, subgroups, etc.)
- Upload the data file with student records (ID variables; HSGPA; FYGPA)
- In 25-35 business days, you will receive an email telling you to login into the ACES system to retrieve your **ACES report and data file** (which has been matched to additional College Board variables).

Requesting an Admission Validity Study

- A min. of 75 student records required for an admission study.
- Can specify up to 5 additional predictors – either ACES-supplied data or from an institution (provided that 75+ students in your sample have that additional variable).
- ACES automatically breaks down results by gender, race/ethnicity, and first language spoken (provided that there are 75+ students in the sample in at least 2 levels of the subgroup).
 - Can also specify 2 additional subgroups – either ACES-supplied (e.g. degree-level goal, ability rating in math), from your data (e.g. resident versus commuter), or a combination.

ACES Admission Validity Study Report

- Provides information on the most useful predictors of success at an institution
- Provides information allowing administrators to narrow the number of factors considered in the admission process without loss of predictive ability
- Provides optimal equations for predicting the success of future students
- **Provide a list of the students at risk**

ACES Admission Validity Report

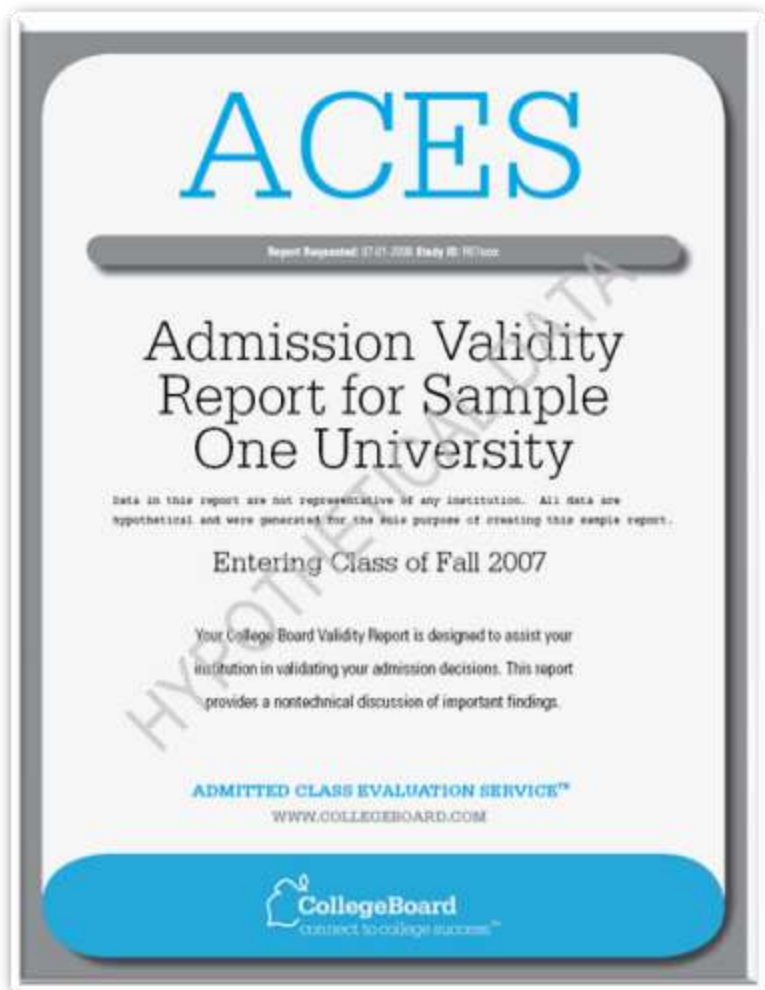


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5	10	Evaluating predictions for specific groups of students
6	11	Evaluating combined admission measures for all (base) groups of students as requested by Sample One University
Appendices		
A		Prediction equations - the predicted First Year GPA is useful in summarizing the chances of success for applicants and monitoring performance of enrolled students
B		Statistical properties of study variables - detailed information about the performance of the 2007 enrolling class at Sample One University
C		List of IDs for students possibly at risk for not completing their degrees at Sample One University

Identifying Students at Risk

Section 4: Using the predicted First-Year GPA for current students to identify students possibly at risk for not completing their degrees at Sample One University

Some students earned a First-Year GPA lower than that predicted by their preadmission credentials. Research has shown that these students are at a higher risk for not completing their degrees. This information can be used to identify students who are possibly at risk for leaving Sample One University prior to graduation.

Summary of Performance

Number who performed higher than predicted	Number who performed as well as predicted	Number who performed lower than predicted	Total number of students	Percent who performed lower than predicted
372	498	130	1000	13.0%

- 100 students, 13.0% of the sample, performed substantially below their predicted First-Year GPA.
- Because these students may be more likely to drop out and may benefit from additional counseling, their student IDs are listed individually in Appendix C.
- Based upon the standard deviation of the predicted First-Year GPA for the entire sample, students whose actual First-Year GPA was one or more standard deviation(s) above the predicted value are considered to be performing higher than expected. Students whose actual First-Year GPA was one and one-half or more standard deviation(s) below that predicted value are considered to be performing lower than expected, and the rest are considered to be performing as well as expected.

Important points:

- A total of 100 students were identified as having a first-year GPA substantially lower than that predicted by their preadmission characteristics.
- To help you target retention efforts at Sample One University, the predicted First-Year GPA has been added to each student's record on the electronic file returned to you. A list of IDs for students possibly at risk for dropping out or transferring is provided in Appendix C. **Since this list contains student identification, you may want to detach Appendix C before distributing this report.**
- Students who earned a First-Year GPA of less than 2.0 are not shown in Appendix C, as these students are readily identified as being at academic risk.
- The five largest differences between predicted First-Year GPA and actual First-Year GPA are listed below. In addition to the predicted and actual First-Year GPA, descriptive information is available for each student's gender and race/ethnicity (R/E), as well as whether English is that student's best language (EBL).

The following table illustrates the information available in Appendix C:

Student ID	First-Year GPA			Gender	R/E	EBL
	Predicted	Actual	Difference			
000-00-0000	3.30	2.00	-1.30	M	W	Y
000-00-0000	3.24	2.15	-1.09	F	W	Y
000-00-0000	3.12	2.00	-1.12	F	W	Y
000-00-0000	3.08	2.00	-1.08	F	W	Y
000-00-0000	3.10	2.04	-1.06	F	W	Y

To help you target retention efforts at Sample One University, the predicted First-Year GPA has been added to each student's record on the electronic file returned to you. A list of IDs for students possibly at risk for dropping out or transferring is provided in Appendix C.

Placement Validity Studies

- It is also possible to use ACES to conduct a predictive placement validity study using scores from:
 - SAT– Critical Reading, Writing, and Math
 - SAT Subject Tests
 - ACCUPLACERto predict success in a college course.

Requesting a Placement Study

- You do not have to submit an additional data file for a placement study *if* you have submitted a comprehensive file for an admission validity study.
- You may analyze up to five separate courses in your placement validity study.
 - There must be at least 30 student records for a placement validity study (or more, depending on the number of predictors used and the type of placement study requested).
- For each course, you will begin by specifying the tests and the predictors you are most interested in evaluating.
 - You may use a single predictor, or up to five predictors, for a single course.

ACES Placement Validity Study

- The predictive validity study provides two probability tables for cut scores, among other information:
 - For a course grade of B or higher
 - For a course grade of C or higher

Example of ACES Placement Chart

Cut Scores Associated with Predicted Probability of Success Criterion:
Final Course Grade of C or Higher in Eng100 Using SAT Scores

Cut Scores Associated with Predicted Probability of Success Criterion: Final Course Grade of C or Higher in Eng100 Using SAT Scores			
Probability of Success	SAT Critical Reading Only	SAT Writing Only	Composite Predictor
0.95			2.94
0.90	791		2.20
0.85	692	750	1.73
0.80	621	640	1.39
0.75	556	570	1.10
0.70	492	512	0.85
0.65	443	476	0.62
0.60	390	416	0.41
0.55	345	370	0.20
0.50	300	327	0.00
0.45	256	268	-0.20
0.40	211	227	-0.41
0.35			-0.62
0.30			-0.85
0.25			-1.10
0.20			-1.39
0.15			-1.73
0.10			-2.20
0.05			-2.94

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

Model Number 1 = $-4.23677 + (0.00505) \times \text{SAT Critical Reading} + (0.00625) \times \text{SAT Writing}$

Here you can see that an SAT CR score of 556, for example, is associated with a 75% probability of obtaining a C or Higher in ENG 100

Chart with Correlations and % Correctly Placed

Individual predictors examined (SAT CR alone, SAT W alone)


Composite predictor examined (SAT CR and W together)

Logistic Biserial Correlations* of Predictors with Success on the Criterion Criterion: Final Course Grade of C or Higher in Eng100 Using SAT Scores						
Predictor Variable(s)	Study Sample			Complete Data Sample		
	N	Logistic Biserial Correlation*	% Correctly Placed	N	Logistic Biserial Correlation*	% Correctly Placed
Individual Predictors						
SAT Critical Reading	492	0.18	69	492	0.18	69
SAT Writing	492	0.29	70	492	0.29	70
Composite Predictors						
Model Number 1	492	0.47	68	492	0.47	68
Model Number 1 includes SAT Critical Reading and SAT Writing						
*The logistic biserial correlation is a measure of the strength of association. It is related to a biserial correlation, but has been modified to be consistent with logistic regression and adapted to single and multiple predictors.						

ACES Validity Handbook

(<http://professionals.collegeboard.com/higher-ed/validity/aces/handbook>)

- It is designed to serve as a general reference for validity and includes information about validity beyond what is specifically applicable to ACES.
- It includes specific information about the types of validity studies and their design that are available through the ACES system and helps interpret ACES study results.



Validity
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Placement Validity Study
Validity Handbook
Test Validity
Validity Evidence
Glossary
Which Study Is Right for You
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About Placement Validity Studies
Predictive Placement Validity Studies
Concurrent Placement Validity Studies
Existing Placement Program Evaluation
Avoiding Potential Problems
FAQ

The College Board Research Homepage (www.collegeboard.com/research)

The image shows a screenshot of the College Board Research homepage. The College Board logo is in the top left. A navigation bar contains links for Education Policy & Advocacy, Membership, Testing, College Guidance, K-12 Services, Higher Ed Services, Professional Development, and Data, Reports & Research. The 'Data, Reports & Research' menu is open, showing a list of categories: Higher Ed Trends & Related Reports, SAT® Data & Reports, PSAT/NMSQT® Data & Reports, AP® Data & Reports, and College Board Research. A search box is visible with a 'Go' button. Below the search box is a 'RELATED DOWNLOADS' section with several document links. On the right side, two callout boxes are present: the top one highlights the 'Data, Reports & Research' menu and its sub-items, and the bottom one highlights the 'View All Research by Title' section, which lists various research topics like AP, CLEP®, SAT Reasoning Test™, SAT Subject Tests™, PSAT/NMSQT, SpringBoard®, Students with Disabilities, Race, Ethnicity & Socioeconomic Status, Higher Education, Conference Presentations, and Validity.

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- 2009 College-Bound Seniors National Report (pdf1223.16K)
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Thank You

- Researchers are encouraged to freely express their professional judgment. Therefore, points of view or opinions stated in College Board presentations do not necessarily represent official College Board position or policy.
- Questions?
- Interested in partnering with the College Board on national validity research projects?
- Contact Emily Shaw: eshaw@collegeboard.org