SAT and Student Success in STEM

The SAT is a valuable part of the college admissions process because it's a strong predictor of college success. When viewed within the context of where a student lives and learns, test scores can help confirm a student's grades or can even show their strengths beyond what their high school grades show.
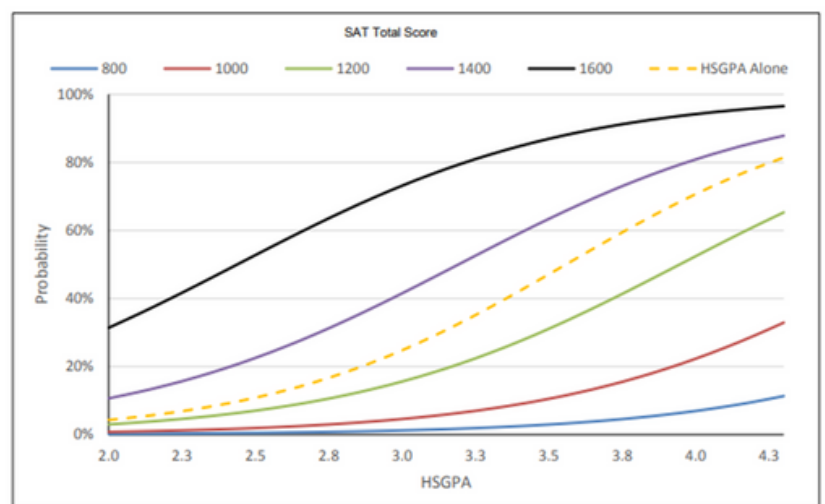
The SAT's predictive value extends to the academic performance of students across various college majors. Even in cases where they are not included in program admission decisions, SAT scores can help colleges better support all students to be successful in their chosen academic program. Because of this, colleges and universities have increasingly been asking all students to submit scores at the point of enrollment, even if not submitted for consideration in admissions.

The joint use of the SAT and HSGPA is stronger than using HSGPA alone to predict cumulative GPA across different academic majors.

Research shows that SAT scores add information about student success at all points of the HSGPA scale for a wide range of academic majors. For students with the same HSGPA, their chances of earning a second-year cumulative GPA (SYCGPA) of 3.0 or higher varies depending on their SAT scores.

As an example, for engineering majors, **SAT scores provide highly meaningful information in predicting a student's probability of earning a 3.00 or higher second-year cumulative GPA (CGPA) across every point on the HSGPA scale.**

Engineering: Probability of Earning a Second-Year Cumulative College GPA of 3.00 or Higher, by High School Grades and SAT Score

Source: Westrick, P.A., Marini, J.P., & Shaw, E.J. (2021). *Using SAT scores to inform academic major-related decisions and planning on campus* (College Board Research Report). New York: College Board.
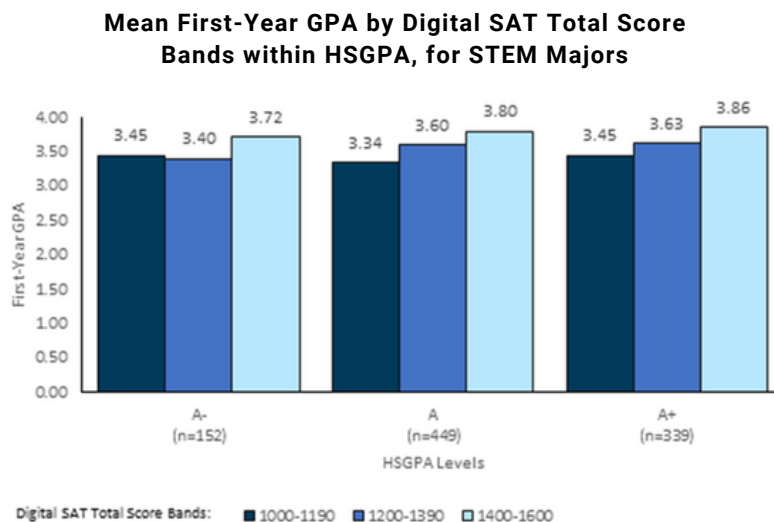
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SAT scores can be used to identify and increase support for STEM students in a test-optional environment.

In a test-optional environment, colleges have less visibility into the academic preparation of incoming students. This can be particularly challenging in STEM programs. Even if not used in admissions decisions, the SAT can help colleges ensure that academic supports reach students who are predicted to struggle academically early in their major courses, enabling them to retain and graduate.

The SAT can be used by institutions to confidently admit qualified students while identifying those who may require additional support, ensuring their success in college and beyond. This allows colleges to shape a class that aligns with their mission and goals while providing targeted support. **Collecting SAT scores at the point of enrollment ensures that colleges can identify and support these students even if they choose not to disclose their test scores during the admission process**.

Digital SAT studies confirm that for STEM majors, the SAT adds even greater information above HSGPA.

With the rollout of the digital SAT pilot, studies confirm SAT scores are quite predictive of first-year GPA (FYGPA) for students in STEM majors in their first year of college. This graph shows the strong, positive relationship between digital SAT scores and FYGPA, controlling for HSGPA, for students majoring in STEM. In fact, this figure represents a **38% increase in utility in predicting FYGPA** when SAT and HSGPA are used together, versus using HSGPA alone.

Mean First-Year GPA by Digital SAT Total Score Bands within HSGPA, for STEM Majors

Digital SAT Total Score Bands: ■ 1000-1190 ■ 1200-1390 □ 1400-1600

Source: Westrick, P.A., Marini, J.P, Young, L, Ng, Helen, & Shaw, E. (2023) *Digital SAT Pilot Predictive Validity Study - A Comprehensive Analysis of First-Year College Outcome* (College Board Research Report). New York: College Board.

ACTION ITEMS:

✓ Consider your current test score policy and score submission rates, and student performance data in STEM majors. Discuss with your institution's student services team if collecting test scores at the point of enrollment would allow you to better support incoming STEM students.

✓ Conduct your own validity study with the Admitted Class Evaluation Service™ (ACES™), a free, online service designed to help evaluate how you're using test scores for admission and placement.