

Issue BRIEF

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Small Changes Make a Big Difference: How Behavioral Science Improved Participation in Advanced Placement

FINDINGS IN BRIEF

- Students who received a personalized message about their potential to succeed in AP coursework—and who were surveyed for this study—were 49 percentage points more likely to participate in AP classes than similar students who did not receive the message.
- These students also became substantially more likely to take an AP exam and passed a higher number of exams, making them eligible for college credit.
- The message had no effect on students who did not participate in the study's survey.
- The results suggest that personalized messages can be a cost-effective way to encourage students, but might only work when combined with an effort to call students' attention to the content of the messages.

The Advanced Placement (AP) program has become a key step on the path to attending a selective college. In the University of California system, for example, more than 90 percent of applicants take AP or honors courses in high school (Geiser and Santelices 2006). However, the College Board estimates that nearly 300,000 high school students with the potential to succeed in an AP course graduate every year without ever taking one. Furthermore, high-achieving students from disadvantaged backgrounds are more likely than other high-achieving students to never take an AP class.

Behavioral science researchers have shown that making small changes in the way information is presented can have a large impact on a person's decision to participate in a program. This issue brief examines how one such change—a personalized message added to a test score report—increased student participation in the AP program.

GETTING THE MESSAGE

According to the College Board's research, the strongest predictor of success in most AP subjects is a student's performance on the PSAT. Based on this finding, the College Board developed "AP Potential" criteria to identify students whose PSAT scores indicated that they were likely to pass a given AP exam.¹ In 2013, the College Board used

these criteria to add a personalized message to PSAT score reports. Students whose PSAT scores met any of the AP Potential criteria received a congratulatory message, informing them that they had "potential for success in at least one AP course" (see figure). Students who did not meet any of the criteria instead received a general message inviting them to speak to their counselor to learn more about the AP program.

Standard and AP Potential Messages

SAT[®]

The PSAT/NMSQT is a great way to get ready for the SAT. The best time to take the SAT is spring of junior year. Register and practice at sat.org.



AP[®]

Congratulations, your scores show that **you have potential for success in at least one AP course!** Log in to see your full report. AP classes bring college to high school to help you get ahead.

Students with section scores showing potential for success in one or more AP courses will be directed to **My College QuickStart** for more information. Other students will be advised to talk to counselors about how to increase preparedness.

Source: 2013 Sample PSAT Report (College Board 2013).

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WHY STUDENTS MIGHT RESPOND

Many high-achieving students, particularly those from less affluent households, miss out on educational opportunities like AP. This issue, known as academic undermatching, is a serious problem in education. Undermatched students are less likely to apply to selective colleges, even though these institutions can offer them academic and financial advantages (Hoxby and Avery 2012). They attend less demanding colleges or do not attend college at all.

When students make decisions about their education, their choices depend in part on the information they have when they assess the potential costs and benefits. If they are uncertain about any of this information, such as their own ability to do well, they might have trouble making an optimal decision or might change their minds. And evidence suggests that this uncertainty matters. For example, research has revealed that college students alter their beliefs about their academic ability in response to fluctuations in their grade point average. These beliefs are ultimately associated with decisions like changing majors and dropping out of college (Stinebrickner and Stinebrickner 2012, 2014; Zafar 2011).

The theory behind an intervention like the AP Potential message is that receiving new, high quality information should lead students to revise their beliefs and potentially make a different decision. This theory is supported by a small but growing number of studies. For example, researchers have found that mailing semi-customized information about colleges and their net costs led high-achieving students from low-income households to apply to and enroll in more selective colleges (Hoxby and Turner 2013).

SURVEY SAYS ...

To test the effects of the AP Potential message on participation in AP, this study analyzed school records from 10th-grade students in the Oakland Unified School District. The study included a survey with more than 400 sophomores in one large high school in the district, both immediately before and after they received their PSAT score reports, to examine whether the message affected their beliefs. The survey asked students about their expected performance on the PSAT, their beliefs about their abilities, and their future academic plans. Between the pre- and post-

surveys, the study team distributed the PSAT score reports, reviewed the contents of the reports, and gave a handout with information to help students interpret their results.²

WHAT THE STUDY REVEALED

For students with the same PSAT scores, those who received the AP Potential message generally thought they had performed better than originally expected, suggesting the message had informational value for them beyond their PSAT score alone. These students in turn revised their beliefs about their academic ability and future academic plans, particularly about the number of AP classes they intended to take.

A regression discontinuity design was used to assess whether the AP Potential message affected students' participation in AP courses and exams the following school year. Receiving the message increased the probability of taking AP courses by 49 percentage points among surveyed students, leading them to enroll in and pass about one more AP course, compared with their peers who did not receive the message. At the end of the school year, these students also were substantially more likely to take an AP exam and passed a higher number of exams, increasing their eligibility for college credit. Being "nudged" into advanced coursework by the message had no detrimental effects on these students' academic performance. However, for students in other Oakland schools who did not participate in the survey and its accompanying review of PSAT scores, receiving the AP Potential message had no effect.

The study found no evidence that merely participating in the survey affected students' decisions. Instead, participating in the survey, *and including a review of the PSAT score report*, appears to have called students' attention to the AP Potential message, leading them to use the information it contained. This suggests that receiving the message is not enough—individuals might also need to have information brought to their attention for it to influence their decision making.

ADDING IT UP

Giving qualified students a simple message early in their high school careers proved to be a cost-effective way to increase their participation in the AP program. This type of intervention may be especially effective for students from disadvantaged

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backgrounds, who are more likely than their peers to miss out on opportunities like AP.

It is important to note, however, that students from other area schools who did not participate in the survey and accompanying score report review did not respond to the information the message offered. This is a well-established behavioral insight—people often fail to use valuable information because their attention and capacity to process information are limited. This study underscores this point and is consistent

with other studies that revealed limited responses to personalized messages about eligibility for financial aid and readiness for college (Bettinger et al. 2012; Foote et al. 2015).

We also know that information design matters. The AP Potential message was relatively inconspicuous on the PSAT score report (see figure), and students and teachers were unaware of its existence because it was the first year the message had been used. The survey, including reviewing the PSAT report and calling attention to the message, may have increased the salience of the message.

The AP Potential Message on the PSAT Score Report

Name: **STUDENT, IMA** The Score Report Plus is designed to help students quickly understand their scores and performance. Year: **2014** Grade: **11** School Code: **123456** Optional Code: **00** Student Copy

PSAT/NMSQT[®] Score Report Plus

Your Scores

Section Scores: **50** (Critical Reading), **52** (Mathematics), **44** (Writing Skills)

Score Range: 46 to 54 (CR), 48 to 56 (M), 40 to 48 (WS)

Percentile: You scored higher than **55%** of juniors.

National Merit Scholarship Corporation

Your Selection Index: 146

Percentile: **47**

Entry Requirements

High school student: **YES**

U.S. citizenship: **YES**

Year to complete high school and enroll full-time in college: **2015**

Years to be spent in grades 9-12: **4**

Your Skills

Determining the Meaning of Words 9 of 15 questions correct (0 omitted)	Number & Operations 12 of 15 questions correct (0 omitted)	Grammatical Relationships Between Words 3 of 10 questions correct (1 omitted)
Author's Craft: Style, Tone, & Technique 3 of 5 questions correct (0 omitted)	Algebra & Functions 3 of 5 questions correct (0 omitted)	Phrases & Clauses 6 of 10 questions correct (2 omitted)
Reasoning & Inference 8 of 10 questions correct (2 omitted)	Geometry & Measurement 8 of 10 questions correct (1 omitted)	Correctly Formed Sentences 1 of 6 questions correct (4 omitted)
Organization & Ideas 2 of 8 questions correct (2 omitted)	Data, Statistics, & Probability 6 of 8 questions correct (1 omitted)	Relationships of Sentences & Paragraphs 2 of 6 questions correct (3 omitted)
Understanding Literary Elements 4 of 10 questions correct (0 omitted)		

Your Answers

Question	Correct Answer	Your Answer	Difficulty
1	A	A	Easy
2	B	C	Easy
3	A	C	Medium
4	C	A	Hard
5			
6	B	C	Easy
7	C	A	Easy
8	A	C	Medium
9	B	C	Medium
10	E	B	Hard
11	D	C	Easy
12	C	A	Easy
13	A	C	Medium
14	B	A	Medium
15	A	C	Hard
16	C	A	Hard
17	A	C	Hard
18	E	C	Hard
19	B	C	Hard
20	B	E	Hard
21	E	C	Hard
22	D	B	Hard
23	E	C	Hard
24	A	C	Hard

Next Steps

You've taken a step on the path to college and the future. Here are some things to consider now:

- So, you're thinking about **Sport/Fitness Administration**. Learn more and see your full results at collegeboard.org/quickstart. Your access code: **A02670146P**
- The PSAT/NMSQT is a great way to get ready for the SAT. The best time to take the SAT is spring of junior year. Register and practice at sat.org.
- Congratulations, your scores show that you have potential for success in at least one AP course! Log in to see your full report. AP classes bring college to high school to help you get ahead.

Information design matters. The AP Potential message was relatively inconspicuous on the score report.

This simple message based on standardized test scores had an impact on students' behavior, suggesting that existing performance data can be used effectively to nudge students.

LOOKING AHEAD

After 2014, the College Board removed the AP Potential message from the PSAT score report. It also launched the All In program to provide guidance for schools on reaching out to students from under-represented groups who meet the AP Potential criteria. This study's results suggest the following going forward:

- The College Board could consider putting the message back in the PSAT score report and redesigning the report to make the message stand out more.
- Schools could call students' attention to the message at a potentially minimal cost—for example, when teachers distribute the reports in class, they could spend 15 minutes going over the information (as the survey team did).

Behavioral science aims to test small enhancements designed to change people's actions for the better. This simple message based on standardized test scores had an impact on students' behavior, suggesting that existing performance data can be used effectively to nudge students. Sending a carefully designed message can also be much cheaper than other types of interventions, such as offering financial incentives. In the end, the value of this type of intervention is likely to depend on the quality and salience of the information it provides.

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Read the working paper, "How Learning About One's Ability Affects Educational Investments: Evidence from the Advanced Placement Program," on which this brief is based.

ENDNOTES

¹For each AP subject, the College Board determines whether a student has at least a 60 percent probability of passing that subject's AP exam, based on the PSAT scores most strongly correlated with this outcome. For example, to meet the AP Potential criteria for Calculus BC, a student must score at least a 56 on the mathematics section of the PSAT.

²The handout contained: (1) a conversion table to help students predict their future SAT scores using their PSAT scores, (2) a table listing the SAT score ranges of admitted students at all the four-year public colleges in California, and (3) a list of the AP courses offered at their school.

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