RESEARCH REPORT 2014-1

CollegeBoard

The Benefits of Early Engagement in the College-Preparation Process: Implications for Practitioners

By Jeff Wyatt, Kara Smith, and Nina Proestler

Nina Proestler was a graduate student intern at the College Board.
Kara Smith is an associate research scientist at the College Board.
Jeff Wyatt is an associate research scientist at the College Board.

About the College Board

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success — including the SAT® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators, and schools.
For further information, visit www.collegeboard.org.

RESEARCH

For more information on College Board research and data, visit research.collegeboard.org.

Contents

Tables

Figures

Executive Summary

The ability of the United States to remain competitive in the expanding global economy will require a more knowledgeable and skilled workforce than ever before. Most of the jobs in the fastest-growing industries will require individuals with some postsecondary education. As such, there is a need to engage students in an effective college- and career-preparation process early to increase their likelihood of readiness and success in college and careers. A system that allows students to exhibit their knowledge, skills, and abilities as they relate to college and career readiness and monitor whether they are on target and stay on target for postsecondary success is an integral component of this process. The College Board offers a set of psychometrically sound assessments called the Pathway that provide students with the opportunity to demonstrate whether they are successfully engaging in the college-preparation process. ReadiStep™, the Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT®), the SAT®, and their associated tools, also create a trajectory that assists students with getting and staying on target for success in college and careers. Using the College Board Pathway, the research presented in this report examines the relationship between student engagement in the college-preparation process and success in postsecondary outcomes for a sample of students who graduated from high school in 2006. Results from analyses of these data indicated that:

- Students who entered the College Board Pathway and exhibited being on target to college and career readiness earlier tended to have higher rates of postsecondary success in terms of four-year college enrollment, retention, and graduation.
- Students who exhibited being on target for college and career readiness early in high school and continuously monitored their readiness throughout the Pathway system tended to have higher rates of postsecondary success than students who did not continue in the Pathway sequence.
- The postsecondary benefits of entering the Pathway in 10th grade, and getting and staying on target to college and career readiness early accrue to all students, regardless of race or ethnicity.

Engagement in the college-preparation process is an important component in a student's college and career readiness. In addition, getting on target early and staying on target is positively related to a student's likelihood of succeeding in postsecondary education. This is meaningful, given the importance of students acquiring the knowledge, skills, and abilities necessary to achieve postsecondary success and engage in careers that will support the nation's competitiveness in the growing global economy.

Background

In order for the United States to remain competitive in the increasingly globalized economy, it is necessary for students to graduate from high school prepared for the demands of college and careers. The global economy has undergone a paradigm shift in the past 40 years that has made it crucial that the nation develop a more educated and skilled citizenry. Prior to the 1970s, a nation's economic prowess was determined largely by its ability to mass produce standardized goods and offer uniform services at competitive prices. Under this model, a largely unskilled or narrowly skilled workforce was sufficient to achieve success. Since the 1970s, however, a demand for customized products and tailored services has developed that requires more advanced skills from the workforce, such as active learning and problem solving (Carnevale, 2013). The workforce began to evolve with the global economy as more specialized education and training programs were developed; nevertheless, there remains a divide in the education and skills of the nation's workforce and the needs of employers. One Federal Reserve Board official has already suggested that persistent high unemployment rates are due, in part, to a mismatch between skills required by employers and those possessed by workers (Altig, 2010). This skills gap may increase as the economy continues to evolve, and most of the fastest-growing jobs will have to be filled by individuals with some postsecondary education (Bureau of Labor Statistics, 2014). Although the percentage of the U.S. workforce that has earned an associate degree or higher has increased slightly from 37.9% in 2008 to 38.7% in 2011, larger increases are needed in order for the nation to remain competitive, given the new economic landscape (The Lumina Foundation for Education, 2013).

To accelerate the trend toward higher degrees, a larger proportion of high school students will need to graduate from high school prepared for the challenge of college-level work or career training programs. This will require students to engage in an effective college-preparation process early. This process should include a system that allows students to exhibit their knowledge, skills, and abilities as they relate to college and career readiness and monitor whether they get on target and stay on target for postsecondary success. The College Board Pathway is a system that helps students engage in the college-preparation process early and monitor their progress toward college and career readiness. In this way, parents and practitioners can identify students who are not on target for college and career success and intervene in a timely manner to get them on target to succeed.

The College Board Pathway Suite of Assessments

The College Board Pathway consists of a set of psychometrically sound assessments and related tools that provide students the opportunity to demonstrate, in a standardized way, their knowledge, skills, and abilities in critical reading, writing, and mathematics. The Pathway is made up of ReadiStep, which is offered in middle school, the PSAT/NMSQT, and the SAT, which are offered at the high school level. Each of these assessments has three sections: Critical Reading, Writing, and Mathematics. These assessments, along with their associated tools[1], create a trajectory that helps students engage in the college-preparation process and get and stay on target for success in college and careers. Additionally, the Pathway Suite of Assessments offers the metrics necessary to monitor a student's preparedness for college and careers and in that way identify when academic interventions may be necessary. To evaluate the postsecondary outcomes of students who participated in the Pathway, this report focuses on the PSAT/NMSQT and SAT[2].

The PSAT/NMSQT is a program cosponsored by the College Board and the National Merit Scholarship Corporation that is administered each year in the fall (October). The PSAT/NMSQT is offered to more than 3.6 million high school students in grades 9–12, and most examinees are high school sophomores and juniors. Scores on each section of the assessment range from 20 to 80. The SAT is a standardized assessment taken by 1.6 million students in the 2013 graduating class. The exam is typically offered to students in grades 9–12, and most examinees are high school juniors and seniors. Scores on each section of the assessment range from 200 to 800.

PSAT/NMSQT® and SAT® College Readiness Benchmarks

The College Board has developed college readiness benchmarks for sophomores and juniors taking the PSAT/NMSQT and students taking the SAT (Wyatt, Kobrin, Wiley, Camara, & Proestler, 2011). The PSAT/NMSQT and SAT benchmarks represent college readiness, that is, the minimum scores at which students have a 65% chance of obtaining a 2.67 first year grade point average (FYGPA) in college. Table 1 presents the benchmarks for each assessment as a composite and for each content area.

1. These tools include My CollegeQuickStart™ (https://quickstart.collegeboard.org/posweb/login.jsp), Summary of Answers and Skills (http://professionals.collegeboard.com/testing/psat/scores/summary), and AP Potential™ (http://professionals.collegeboard.com/k-12/prepare/appotential).
2. ReadiStep was introduced in 2005, and there is insufficient data to warrant inclusion in these analyses. Data obtained from the ReadiStep will be included in future analyses.

Table 1.

College Readiness Benchmarks for PSAT/NMSQT® and SAT®

College Readiness Benchmark	Critical Reading	Mathematics	Writing	Composite
10th-Grade PSAT/NMSQT	42	44	42	133
11th-Grade PSAT/NMSQT	45	47	45	142
SAT	500	500	500	1550

Purpose

The purpose of this study is to examine the relationship between engagement in the college-preparation process through the Pathway Suite of Assessments and postsecondary success. We investigate several aspects of preparing for college, including early access and entry into the Pathway system, continuous monitoring, and both demonstrating being on target to achieve, and achieving college and career readiness. We examine whether these benefits apply to all students as well as to specific racial/ethnic student groups.

Data and Methodology

Two datasets were merged to examine the relationship between engagement in the college-preparation process and postsecondary success. The first dataset was the College Board's 2009 cohort database of 2,751,372 students, which contains AP®, SAT, and PSAT/NMSQT scores, self-reported high school grade point average (HSGPA), and demographic information[3]. The 2009 cohort was selected because of the availability of the four-year postsecondary outcome data. The second dataset was the National Student Clearinghouse (NSC) database. NSC tracks student enrollment and degree attainment for over 3,100 two- and four-year colleges and universities in the U.S.[4] equivalent to approximately 93% of the U.S. college-going population. The College Board cohort database was matched to the NSC database, resulting in a sample that included 2,633,677 students[5]. The final dataset was used to examine various combinations of engagement in the college-preparation process and demonstrating college and career readiness (e.g., participating in and meeting the 10th-grade PSAT/NMSQT benchmark, and participating in and meeting the 11th-grade PSAT/NMSQT benchmark but not participating in the SAT).

3. The higher education validity database was used to examine FYGPA, but the counts of students in each group analyzed were too small to make inferences.
4. A list of participating institutions is located at http://www.studentclearinghouse.org/colleges/enrollment_reporting/participating_schools.php.
5. Not all students in the College Board cohort database had records in the NSC database and were therefore not matched.

Findings

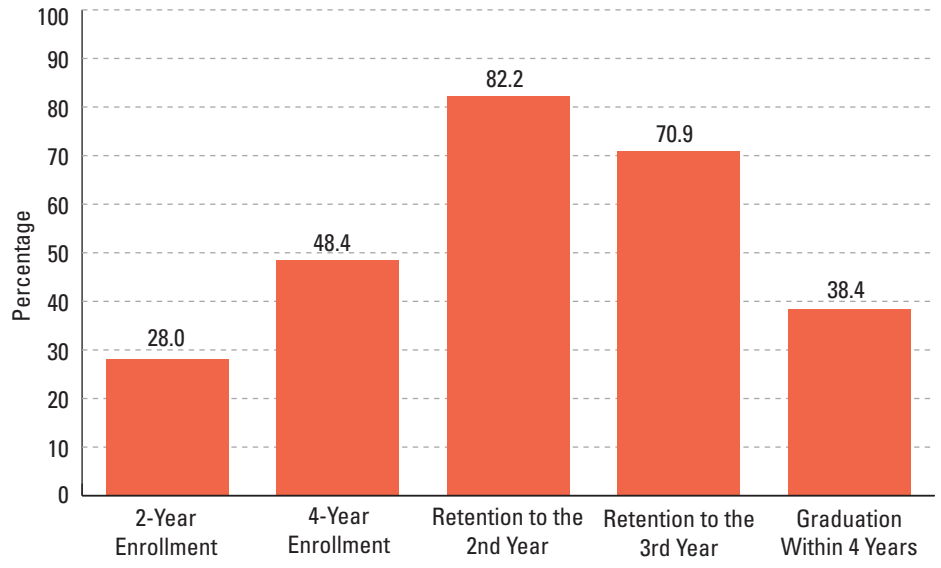
The results of this research highlight the relationship between preparing for college early, continual monitoring and success in the Pathway system, and demonstrating college and career readiness on postsecondary success.

Postsecondary Outcomes of the Complete Sample

To provide a frame of reference for the results discussed in this section, the total group of students in the matched NSC and 2009 College Bound Seniors data sample was examined. That is, students within the U.S. who took any College Board assessment and were matched to NSC data (2,633,677 students). Of this group, 28.0% enrolled in a two-year institution, and 48.4% enrolled in a four-year institution. Of the 1,275,970 students who enrolled in a four-year institution, 82.2% continued to the second year, 70.9% continued to the third year, and 38.4% graduated within four years. Results are presented in Figure 1.

Figure 1.

Postsecondary outcomes for all students in the NSC and College Board matched cohort.



Notes:
n = 2,633,677
2-Year Enrollment: Percentage of students who enrolled in a 2-year institution as first institution after high school.
4-Year Enrollment: Percentage of students who enrolled in a 4-year institution as first institution after high school.
Retention to the 2nd Year: Percentage of students who enrolled in a 4-year institution and continued to their 2nd year.
Retention to the 3rd Year: Percentage of students who enrolled in a 4-year institution and continued to their 3rd year.
Graduation Within 4 years: Percentage of students who enrolled in a 4-year institution and graduated within 4 years.

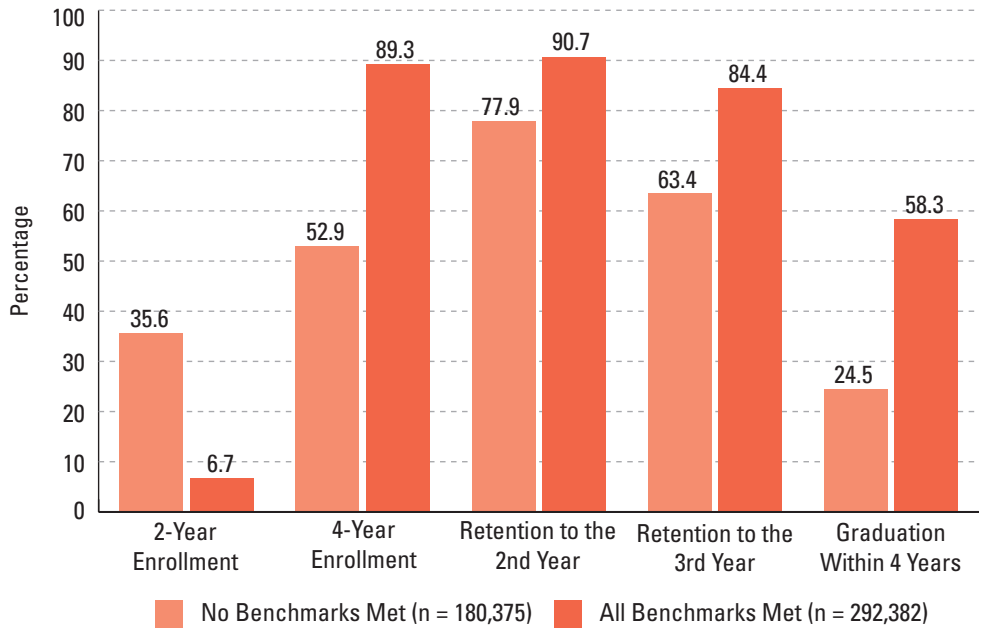
The Relationship Between Engagement in the College-Preparation Process and Postsecondary Success

To examine the benefit of getting and staying on target to college and career success, we analyzed groups of students in this sample who demonstrated various levels of engagement in preparing for college. We first compared students in this sample who were on target to achieve college readiness each time they monitored their readiness with students whose preparation had not led to their being on target for college success at any of these points. We then examined individual comparisons and presented the postsecondary outcomes of groups of students following various trajectories on the Pathway.

Overall Comparisons. College outcomes were compared between two groups of students: those who were on target for college and career readiness and those who did not demonstrate college and career readiness at any point in the process. Students who were not on target were more than five times more likely to enroll in a two-year institution than students who were on target. Students on target were almost two times (1.77) more likely to enroll in a four-year institution than students who were not. Students on target were almost two and a half times more likely to graduate within four years than students who were not. Students who met the benchmark were also more likely to continue and to graduate within four years. Results from this analysis are presented in Figure 2. These findings provide evidence of the importance for students to get on target and stay on target for college readiness.

Figure 2.

Postsecondary outcomes by overall benchmark attainment.



Note: Retention and graduation statistics are based on students enrolling in four-year institutions.

Individual Comparisons. While overall comparisons illustrate the benefit of meeting each of the benchmarks when compared to not meeting any benchmark, it was also important to study individual differences in participation, persistence, and performance. To that end, we examined both whether there was a relationship between entering the Pathway early and getting on target and the role of persistence on postsecondary outcomes.

Entering the Pathway Early and Being on Target

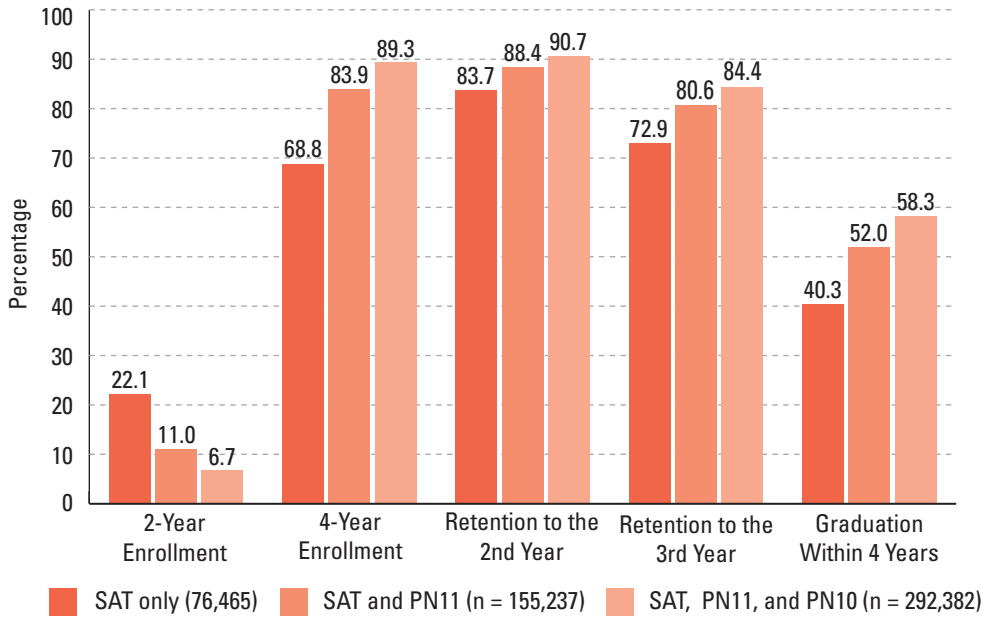
To study the relationship between early entry and being and staying on target to college and career readiness, we examined three groups of students. We first compared students who took only the SAT and met the benchmark, students who took both the SAT and the PSAT/NMSQT in 11th grade and met both of the benchmarks, and students who took the SAT and the PSAT/NMSQT twice (11th and 10th grade) and met all three benchmarks. Results from these analyses are presented in Figure 3. Findings from this sample illustrate a positive relationship between early engagement in the process and getting on target to college readiness sooner on postsecondary outcomes.

Students who took only the SAT at any point during high school and met or exceeded the benchmark had the lowest rates of college outcomes. This group of student had the largest proportion of students enrolled in a two-year school (22.1%), and the smallest proportion of these students enrolled in a four-year school (68.8%). This group also has the smallest proportion of students who enrolled in a four-year school continuing to the second year (83.7%) and to the third year (72.9%), and the lowest proportion of students who graduated within four years (40.3%). Higher rates for these college outcomes were observed when students took both the SAT and the PSAT/NMSQT in 11th grade and met the benchmark on both assessments. Rates are highest when students took the SAT, the 11th-grade PSAT/NMSQT, and the 10th-grade PSAT/NMSQT and met the benchmarks on all three administrations. Of students in this sample who took the PSAT/NMSQT twice and the SAT once[6] and met the benchmark on each of these assessments, only 6.7% enrolled in two-year schools, while 89.3% enrolled in a four-year school. Of the students who enrolled in a four-year school, 90.7% continued to a second year, 84.4% continued to a third year, and 58.3% graduated within four years. The results suggest a relationship between timely engagement in the college-preparation process, beginning with the 10th-grade PSAT/NMSQT, and getting and staying on target for college success early.

6. Students could have taken the SAT more than once. The most recent SAT score was used to determine whether students met the benchmark.

Figure 3.

Postsecondary outcomes by participation and benchmark attainment: late to early.



Note: Retention and graduation statistics are based on students enrolling in four-year institutions.

Continuous Monitoring

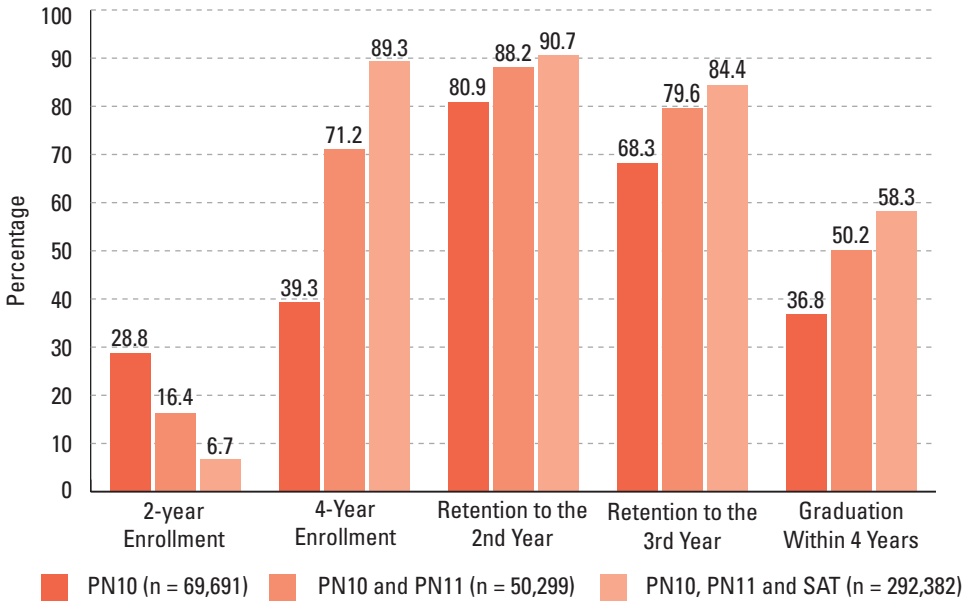
While Figure 3 illustrates the advantages of entering the process early and getting on target, it was also important to examine the role of continuous monitoring for students who get on target in 10th grade. Therefore, we sought to examine whether there was a relationship between getting on target and continuous monitoring on postsecondary outcomes.

Analyses similar to those presented in Figure 3 are presented in Figure 4 but focused on the effect of continuous monitoring among students who were on target to be college ready in 10th grade. That is, we compared the postsecondary outcomes of three groups of students in this sample: those who took only the 10th-grade PSAT/NMSQT and met the benchmark, those who took only the 10- and 11th-grade PSAT/NMSQT and met both benchmarks, and those who took the 10th- and 11th-grade PSAT/NMSQT and the SAT and met all three benchmarks.

Findings from students examined in this sample indicate a positive relationship between continuous monitoring and rates of postsecondary success. That is, students who were on target for college and career success early in the process but disengaged later in the process were found to have the lowest rates of postsecondary success. Students in this group also had the largest proportion of students enroll in a two-year institution (28.8%) and the lowest proportion of students who enrolled in a four-year institution (39.3%). Of the students who enrolled in a four-year institution, this group had the smallest proportion continue to the second year (80.9%) and the third year (68.3%), and this group had the smallest proportion graduate within four years (36.8%). Students who continuously monitored and were on target through the 11th-grade PSAT/NMSQT achieved higher rates of postsecondary success than those who failed to continuously monitor past 10th grade. Students who continuously monitored and were on target through the SAT achieved the highest rates of postsecondary success.

Figure 4.

Postsecondary outcomes by participation and benchmark attainment: early to late.



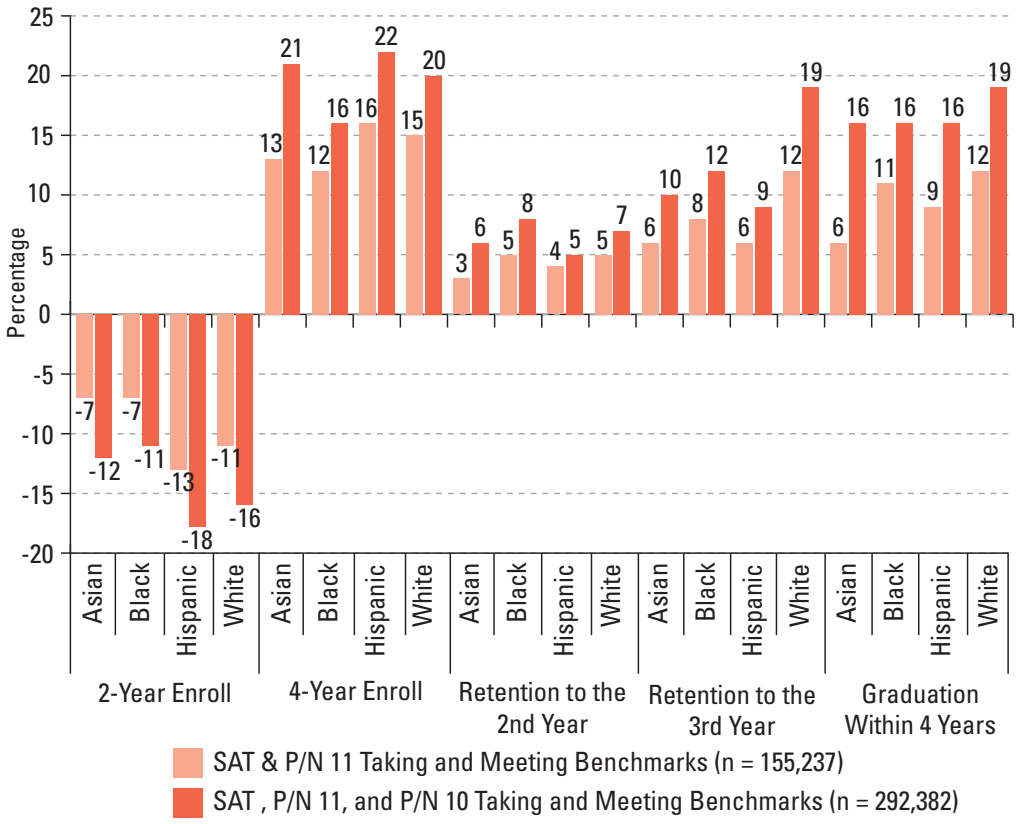
Note: Retention and graduation statistics are based on students enrolling in four-year institutions.

Results by Ethnic Group. The relationship between being college ready and postsecondary success was further examined by ethnic group to determine whether the benefits apply to all students regardless of race or ethnicity. Figure 5 presents the differences for students who engaged in the college-preparation process and demonstrated college readiness at multiple points throughout high school, compared to those who participated in only the SAT and demonstrated college readiness. The light-orange columns indicate the difference in postsecondary achievement rates for those who met both the 11th-grade PSAT/NMSQT and SAT benchmarks, compared to students who met only the SAT benchmark. For example, the light-orange column on the farthest left-hand side of the graph shows that Asian students who participated in the SAT and the 11th-grade PSAT/NMSQT had two-year enrollment rates that were 7% lower than those of Asian students who participated in only the SAT. The dark-orange columns indicate the difference in postsecondary achievement rates for students who met the 10th-grade PSAT/NMSQT, 11th-grade PSAT/NMSQT, and SAT benchmarks, compared to those of students who met only the SAT benchmark. For example, the dark-orange column on the farthest left-hand side of the graph shows that students who participated in all three assessments had two-year enrollment rates that were 12% lower than those of students who participated in only the SAT. Trends similar to those presented previously in this report were found when data were analyzed for Asian, African American, Hispanic, and white students. That is, students in our sample who took the SAT only and met the college readiness benchmark had the lowest rates of four-year college outcomes, while those who were on target for college readiness and monitored their progress by taking the SAT and the PSAT/NMSQT in 11th grade had higher rates of college outcomes. Students who were on target for college readiness and monitored their progress by taking the SAT and the PSAT/NMSQT in both the 10th and 11th grades had the highest rates of postsecondary success.

It is also important to examine the magnitude of the difference by ethnic group to understand the benefits of engagement in an effective college-preparation process. Figure 5 indicates that, in general, the benefits of getting on target and staying on target accrue to all students, regardless of race or ethnicity.

Figure 5.

Relationship between level of College Board Pathway participation and performance and postsecondary outcomes by ethnicity.



Note: Differences between postsecondary outcomes for students taking only the SAT and students taking the SAT and P/N in 11th grade are indicated in light-orange columns; differences between postsecondary outcomes for students taking only the SAT and students taking the SAT and P/N in 10th and 11th grade are indicated by dark-orange columns.

Sensitivity Analysis

It is possible that student self-selection to participate in College Board assessments could bias the results of the study because the population of early test-takers may be systematically different from the more general cohort. In order to investigate the sensitivity of the results to this potential bias, we can take advantage of a predictor of PSAT/NMSQT test taking that is more independent of the student's decision: PSAT/NMSQT contract implementation. When states and districts engage in a contract with the College Board, the respective assessment is offered to all students in the state or district. Thus, this districtwide adoption measure can be used to study the impact of early engagement with less threat of bias due to student self-selection. We examined whether the implementation of a 10th-grade PSAT/NMSQT contract in schools and districts was related to changes in either SAT scores or postsecondary outcomes. These outcomes included enrollment and persistence to fourth year among those enrolled at a four-year institution. A differences-in-differences approach was used to compare changes over time in SAT scores and postsecondary outcomes for schools and districts implementing a contract, to schools in the same states or districts that did not have a PSAT/NMSQT contract in place. The treatment group consisted of schools in districts that implemented a 10th-grade PSAT/NMSQT contract in the 2004-05 school year, which would impact students in the 2008 graduating class. This group was restricted to students who had taken the SAT Exam, attended schools that had at least a 40% increase in PSAT/NMSQT participation in that academic year and had to have less than a 20% change in SAT participation rate. The resulting 2007 treatment group included 11,401 students, and the 2008 treatment included 11,383 students across 56 schools in seven states.[7] The control group consisted of schools in a district that did not have a 10th-grade PSAT/NMSQT contract in place and had a (10-grade) participation rate less than or equal to that of the highest participation rate of any school in the treatment group.[8] The 2007 control group included 63,795 students, and the 2008 control group consisted of 64,121 students from 422 schools in the same seven states as those in the treatment group.

Table 2 compares the percentage of students who took the PSAT/NMSQT in 10th grade in both the treatment and control groups for the 2007 and 2008 graduating classes. The data indicate the percentage of SAT takers taking the PSAT/NMSQT in 10th grade is very similar in both groups prior to implementation. Table 3 indicates that the treatment group was less academically prepared, as measured by SAT scores. The treatment group did show a slight gain in year-over-year SAT scores (+7), whereas the control group was essentially unchanged (-1). Table 4 compares enrollment and persistence rates for students in the treatment and control groups for both the 2007 and 2008 graduating classes. Between 2007 and 2008, the treatment group experienced a 2.2 percentage-point increase in two-year college enrollment, more than the 0.9 percentage-point increase for the control group. Both groups experienced a decline in four-year college enrollment, 0.5 percentage points for the treatment group and 0.4 percentage points for the control group. The persistence rates to fourth year for the treatment group increased by 1.5 percentage points as opposed to 0.5 percentage points for the control group. Thus, even after controlling for differences in self-selection, there was a positive relationship between taking the PSAT/NMSQT in 10th grade and some measures of college success.

7. The seven states include Arizona, California, Maryland, Massachusetts, Tennessee, Texas, and Washington.

8. The highest participation rate among schools in the treatment group was 53%.

Table 2.

PSAT/NMSQT Participation Rates Among SAT Takers for the Treatment and Control Groups in 2007 and 2008

	2007	2008
Treatment	25.5%	81.5%
Control	29.0%	30.7%

Table 3.

Performance on the SAT for the 2007 and 2008 Samples

	Treatment Group		Control Group	
	2007	2008	2007	2008
Mathematics	456	456	503	503
Reading	448	451	486	485
Writing	446	449	477	477
Composite	1349	1356	1466	1465

Table 4.

Enrollment and Persistence Rates for the 2007 and 2008 Samples

	Treatment Group			Control Group		
	2007	2008	Change	2007	2008	Change
Two-Year	36.8	39.0	2.2	32.1	33.0	0.9
Four-Year	50.3	49.8	-0.5	57.8	57.4	-0.4
Persistence	78.9	80.4	1.5	78.2	78.7	0.5

Note: Persistence is persistence to fourth year and is only measured for students initially enrolling in a four-year institution.

Discussion and Conclusions

The purpose of this study was to understand the importance of both early engagement in the Pathway component of the college-preparation process as well as the continuous monitoring of college readiness on postsecondary outcomes, for all students as well as across various ethnic groups. Previous research has identified the benefits of demonstrating college and career readiness, as measured by meeting or exceeding the College Board college and career readiness benchmarks (e.g., Wyatt, Kobrin, Wiley, Camara, & Proestler, 2011; Proctor, Wyatt, & Wiley, 2010). However, until now little consideration has been given to understanding the importance of continuous engagement in the college-preparation process and the benefits of monitoring students' progress.

Analyses conducted on the sample of students presented in this report suggest a positive relationship between effective engagement and continuous monitoring in a college-preparation process and postsecondary success. That is, students who became active in the process in 10th grade and demonstrated that they are on target for college readiness by meeting or exceeding the college and career readiness benchmarks, and continuously

monitored their progress, had higher rates of postsecondary success than students who became engaged later in the process and got on target. Results also demonstrate that these benefits apply to all students, regardless of race or ethnicity.

These results not only provide additional evidence of the importance of getting on target early but also demonstrate the importance of continuously monitoring students' progress toward college and career readiness. Therefore, disengagement in the monitoring process was identified as detrimental to college and career readiness and success. Students should remain engaged in the process, and practitioners and parents should support this effort in a variety of ways. If a student engages in the process but demonstrates that he or she is not on target for college and career readiness, the appropriate academic interventions should be implemented to boost readiness based on the student's identified strengths and weaknesses. Similarly, if a student is shown to be on target for success at an early point, parents and practitioners should encourage continual monitoring to ensure that the student is remaining engaged and maintaining his or her current level of academic preparedness.

Limitations

Regarding the interpretation of benchmark performance, it is important to note that students scoring below the benchmark may still do well and succeed in high school and college. In addition, it is important to note that college success requires a range of knowledge and skills that include both cognitive and noncognitive factors (e.g., motivation, self-regulation, and perseverance) that are not measured by the Pathway suite of assessments. Further, if students fall below the benchmarks on the 10th-grade or 11th-grade PSAT/NMSQT, academic interventions might help students get back on track to achieve college and career success. It is also important to recognize that students who demonstrate college readiness in 10th and/or 11th grades will need to maintain their academic readiness because, in some cases, students have been shown to fall off target.

Regarding the study itself, it is important to note several limitations. Often, students self-select to participate in College Board assessments, and therefore the different subsamples may have varying levels of baseline preparation or motivation. That is, students who participated in more than one assessment may have been more academically prepared and motivated, which in turn influenced the timing of their test taking. Similarly, schools and districts that offer students the opportunity to take the PSAT/NMSQT may have better academic programs than schools not providing those opportunities.

In addition to self-selection, other possible limitations include prior achievement and noncognitive factors. Such limitations should be considered when making inferences about these findings. Future research may consider controlling for prior academic achievement and other student-level factors such as motivation.

By supporting students' engagement in a suite of assessments that effectively monitors their progress toward college and career readiness, we can increase the likelihood that they will succeed at the postsecondary level. In that way, we can help them prepare to fill employment positions that require the knowledge, skills, and abilities necessary to assist the nation in continuing to compete in the expanding global economy.

References

Altig, D. (2010). *A curious unemployment picture gets more curious*. Retrieved January 8, 2014, from: http://macroblog.typepad.com/macroblog/2010/07/a-curious-unemployment-picture-gets-more-curious.html

Bureau of Labor Statistics. *Occupational Outlook Handbook*. Retrieved January 8, 2014, from: http://www.bls.gov/ooh/fastest-growing.htm

Carnevale, Anthony P. (2013). 21st Century Competencies for College and Career Readiness. *Skills for Career Success in the 21st Century*. NCDA Career Developments, Spring 2013. Retrieved January 2, 2014, from https://repository.library.georgetown.edu/bitstream/handle/10822/559289/CD_21stCenturyCompetencies.pdf?sequence=1

Proctor, T., Wyatt, J., & Wiley, A. (2010). PSAT/NMSQT Indicators of College Readiness. Retrieved August 27, 2014 from https://research.collegeboard.org/sites/default/files/publications/2012/7/researchreport-2010-4-psat-nmsqt-indicators-college-readiness.pdf

The Lumina Foundation for Education (2013). *A Stronger Nation Through Higher Education*. Indianapolis. Retrieved January 2, 2014, from http://www.luminafoundation.org/stronger_nation_2013/downloads/pdfs/a-stronger-nation-2013.pdf

Wyatt, J., Kobrin, J. L., Wiley, A., Camara, W. J., & Proestler, N. (2011). *SAT Benchmarks: Development of a college readiness benchmark and its relationship to secondary and postsecondary school performance*. Research Report 2011-5. New York: The College Board.

The Research department actively supports the College Board's mission by:

- Providing data-based solutions to important educational problems and questions
- Applying scientific procedures and research to inform our work
- Designing and evaluating improvements to current assessments and developing new assessments as well as educational tools to ensure the highest technical standards
- Analyzing and resolving critical issues for all programs, including AP®, SAT®, PSAT/NMSQT®
- Publishing findings and presenting our work at key scientific and education conferences
- Generating new knowledge and forward-thinking ideas with a highly trained and credentialed staff

Our work focuses on the following areas

Admission	Measurement
Alignment	Research
Evaluation	Trends
Fairness	Validity

Follow us online: research.collegeboard.org

CollegeBoard

CollegeBoard