

SMASH Impact Report 2017




SMASH =

2148 Broadway | Oakland, CA 94612 | 415.946.3030

WHY DIVERSIFY STEM EDUCATION?

Science, Technology, Engineering, and Math (STEM) occupations are in high demand and continue to be among the fastest growing and highest paying jobs in the US economy (BLS, 2017). STEM jobs grew twice as fast as the all other occupations between 2009 and 2015 (10.5% vs. 5.2%) and average wages for STEM occupations are nearly twice those of non-STEM occupations (BLS, 2017). Over 1 million new STEM job openings are projected to be created from 2014-2024 (BLS, 2017).

While STEM occupations are growing rapidly, Black and Latinx professionals are still sharply underrepresented in STEM fields. Although they comprise 30% of the US population (and growing), just 11% of science and engineering jobs are held by Black and Latinx workers (US Census, 2017 and NSF, 2017). Underrepresentation is even more stark in computing professions, where Black and Latinx workers combined hold just 9% of the technical positions in the tech workforce (Kapor Center, 2018). Increasing the representation of Black and Latinx STEM and computing professionals has the potential to meet the projected demand for STEM workers in the 21st century economy, while expanding opportunities for and broadening the economic opportunities of underrepresented communities of color.



“There’s something to be said about being surrounded [at SMASH] by peers that are all competitive, goal driven, and hungry for more. There’s a drive in every person you meet. It’s infectious.”

*- SMASH Stanford Alumnus,
University of California, Santa Cruz*

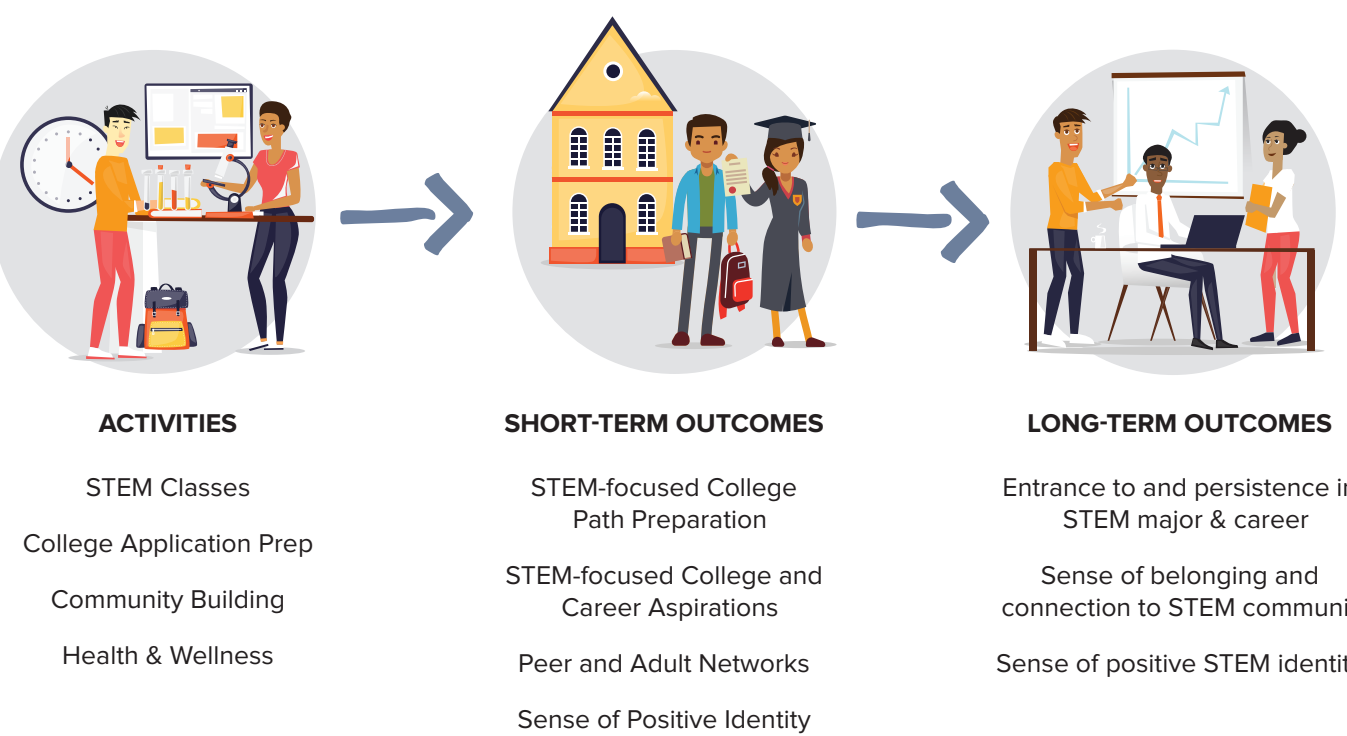
SMASH: A TRANSFORMATIONAL MODEL

Through a comprehensive STEM program, the SMASH Academy impacts the educational and career trajectories of underrepresented high school students of color, transforming youth, families, and communities. The SMASH model includes:



LOGIC MODEL

The SMASH logic model outlines our approaches and short- and long-term outcomes the program aims to achieve.



SMASH SCHOLAR DATA

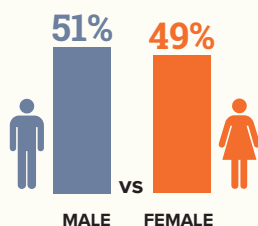
SMASH SCHOLARS AND ALUMNI BY SITE			
	Total Current Scholars	Total Alumni	Total Scholars + Alumni
University of CA, Berkeley	77	264	341
Stanford University	78	146	224
University of CA, Los Angeles	76	124 ¹	200
University of CA, Davis ²	59	-	59
Morehouse College ³	28	-	28
Total Students	318	534	852

¹ Due to the closing of the University of Southern CA site and its subsequent transfer of scholars to University of California, Los Angeles, this alumni tally includes both sites.

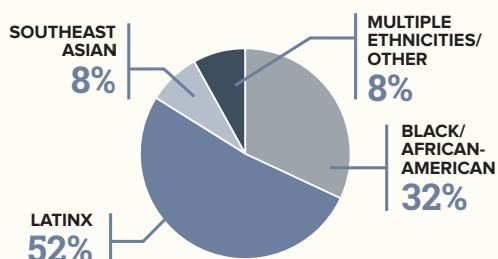
² Summer 2017 was the second cycle of SMASH at University of CA, Davis, so there are no third year scholars or alumni.

³ Summer 2017 was the first cycle of SMASH at Morehouse College, so there are no second or third year scholars, or alumni.

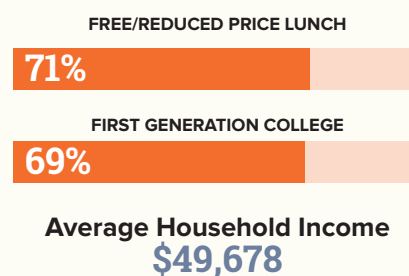
gender



race/ethnicity



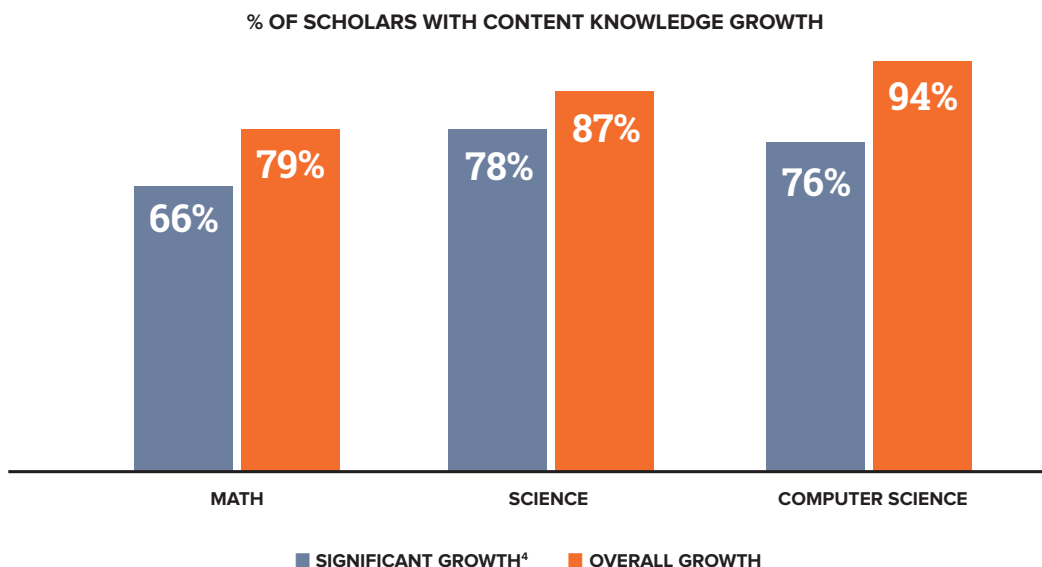
socioeconomic status



SMASH ACADEMY: 2017 OUTCOMES



The pre-post assessments examined program impact on scholars' understanding of STEM content. Results showed the majority of scholars demonstrated significant growth in math, science, and computer science content knowledge from before SMASH to after SMASH.



“Participating in SMASH was the first time I saw myself reflected in my peers. It motivated me to go to college and to specific types of colleges. The positionality of SMASH and LPFI within the larger context of communities of color in general and people of color in STEM motivated me to pursue social justice endeavors.”

- SMASH Berkeley Alumna,
Stanford University



⁴ See Appendix for description of significant growth calculation.

B.

The pre-post impact survey explored scholars' interest in pursuing STEM education and careers. Results demonstrated the majority of scholars intend to pursue STEM degrees and careers after high school.

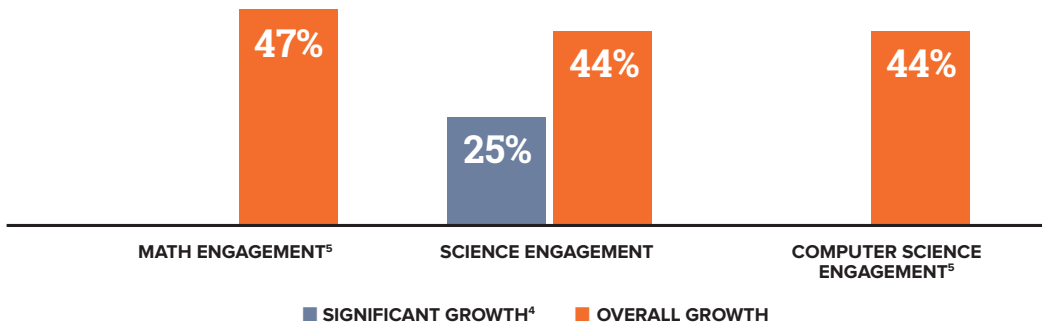
92% OF SMASH SCHOLARS INTEND TO MAJOR IN STEM AFTER SMASH



72% OF SMASH SCHOLARS INTEND TO PURSUE A CAREER IN A STEM FIELD AFTER SMASH



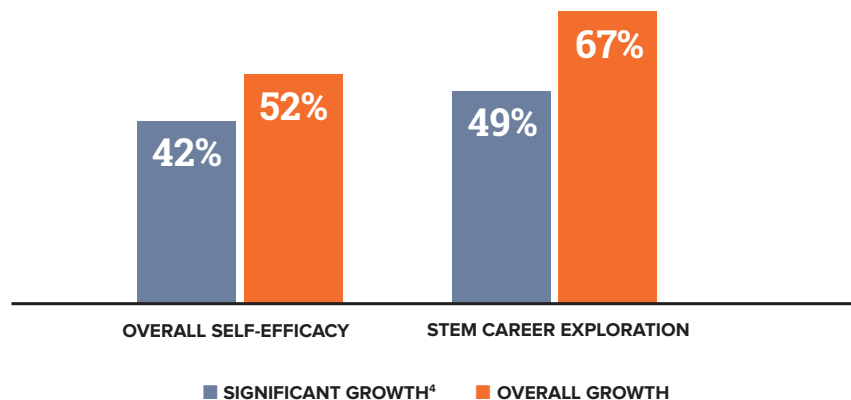
% OF SCHOLARS WITH STEM ENGAGEMENT GROWTH



C

The pre-post impact survey also measured the program's impact on key social-emotional indicators linked to STEM persistence. Results revealed scholars growth in overall self-efficacy and exposure to STEM careers and role models over the course of the program.

% OF SCHOLARS WITH SOCIAL-EMOTIONAL GROWTH



⁵ Scholars did not demonstrate significant growth in math or computer science engagement.

SMASH 2017 ALUMNI OUTCOMES⁶

SMASH alumni high school graduation rates are 17% higher than the national average.

SMASH AVERAGE

100%

NATIONAL AVERAGE

83%

BLACK/LATINX AVERAGE

77%

SMASH alumni Bachelor's degree completion rates are 31% higher than the national average.

SMASH AVERAGE

91%

NATIONAL AVERAGE

60%

BLACK/LATINX AVERAGE

48%

SMASH alumni intend to major in STEM at a rate 31% higher than the national average.

SMASH AVERAGE

76%

NATIONAL AVERAGE

45%

BLACK/LATINX AVERAGE

43%

SMASH alumni complete STEM Bachelor's degrees at rates 2x higher than the national average.

SMASH AVERAGE

64%

NATIONAL AVERAGE

32%

BLACK/LATINX AVERAGE

31%

93% of our alumni move on to 4-year colleges, with **45%** attending a US News & World Report Top 50 College/University.

Most Frequently Attended Top 50:



Most frequently declared STEM majors:

Engineering | Biology/Human Biology
Computer Science | Psychology
Biomedical Sciences | Mathematics and Statistics

70% of SMASH alumni major in STEM, and

23% are in computer and information sciences-related majors.



⁶ High school graduation, STEM major, and degree completion rates were calculated for both the national average overall and the national average for Black and Latinx students.

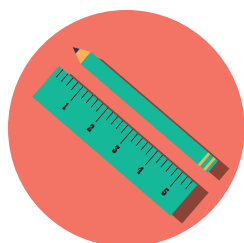
REPORT METHODOLOGY

The SMASH evaluation process and methodology were created to examine the outcomes and activities of the program (see page 2 for the SMASH program logic model) and measure the growth of scholar attitudes, aspirations, and academic knowledge over the course of the program. SMASH evaluation data have been collected each summer for seven years, along with annual alumni surveys to examine longitudinal outcomes of SMASH scholars. The data and findings are subsequently used to inform program planning and development.



Data Collection

The SMASH impact evaluation included three forms of data collection: (1) Academic assessments examining growth in mathematics, science, and computer science knowledge, (2) SMASH scholar impact survey examining students' attitudes and aspirations, (3) SMASH alumni survey tracking post-secondary data of SMASH alumni. Scholar data were collected at both pre- and post-SMASH program and alumni data were collected annually.



Analytical Procedures

For SMASH impact data, statistical significance levels for scholars were calculated using effect size benchmarking (a way of quantifying the size of a difference between two means after identifying that there is a statistically significant difference between the scores pre-program and post-program). Descriptive statistics were used for the alumni data.

For additional detailed information of survey instruments and analytical procedures, please contact research@kaporcenter.org.

