Summer Math and Science Honors Academy

2011-2012 Evaluation Report

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ABOUT SMASH ACADEMY

SMASH IS…

- Summer Math and Science Honors Academy.
- A three-year 5-week summer math and science enrichment program.
- For high achieving, low-income high school students of color.
- Focused on Science, Technology, Engineering and Mathematics (STEM).
- Successful in preparing scholars for college and achievement in higher education.
- Free of cost.

Level Playing Field Institute admitted 120 new students to participate in SMASH Academy for summer 2011 and expects to admit approximately 120 new scholars for 2012. We welcome applicants who are excited to work hard and to take advantage of our many resources. SMASH is free for all admitted students.

Web: www.lfpi.org/smash

ABOUT LEVEL PLAYING FIELD INSTITUTE

Level Playing Field Institute (LPFI) is an Oakland-based non-profit that is committed to eliminating the barriers faced by underrepresented people of color in science, technology, engineering and math (STEM) and fostering their untapped talent for the advancement of our nation.

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OBJECTIVES OF THE SMASH IMPACT EVALUATION

1. Examine the goals, objectives, and activities of the SMASH program and construct measures to assess impact in each critical area.
2. Collect data from SMASH scholars to measure academic growth, attitudes, aspirations, and skills, and understand students' perspectives of the SMASH program.
3. Utilize the data and findings to document outcomes and inform program growth and improvement.

METHODOLOGY

Data Collection

The SMASH impact evaluation included five different forms of data collection: Academic Assessments, Pre-Post Scholar Survey, Qualitative Data Collection, SMASH Alumni Survey, and SMASH Demographic and Academic Year Data Collection.

Quantitative Analytical Procedures

- All quantitative data were analyzed using SPSS statistical package.
- The **percentages** for each item were recorded (e.g., % strongly agree/agree) for both pre- and post-SMASH responses.
- The **percentage change** between pre- and post- was calculated to determine growth or stagnation.
- Each item was grouped with its corresponding scale/variable and **reliability analyses** were conducted; for reliable scales, individual items were summed into scales.
- The mean of each scale (pre- and post) was then calculated and **paired-samples T-tests** were run to determine if the mean values changed significantly from pre- to post-condition.
- **Methodological note**: All scales are comprised of items rated on a 5-point Likert scale, and the mean values on each scale range from 1-5 with 5 being the highest possible value. Mean values and significant pre-post changes are reported. All item percentages reported reflect the percent of students who strongly agreed and/or agreed with each item.

Qualitative Analytical Procedures

- Utilized qualitative data analysis software to code open-ended questions and focus group transcripts.
- Compiled codes into numerical categories in order to produce frequency reports.
- Summarized longer comments into general themes as examples.

Data Collection Technique Summaries

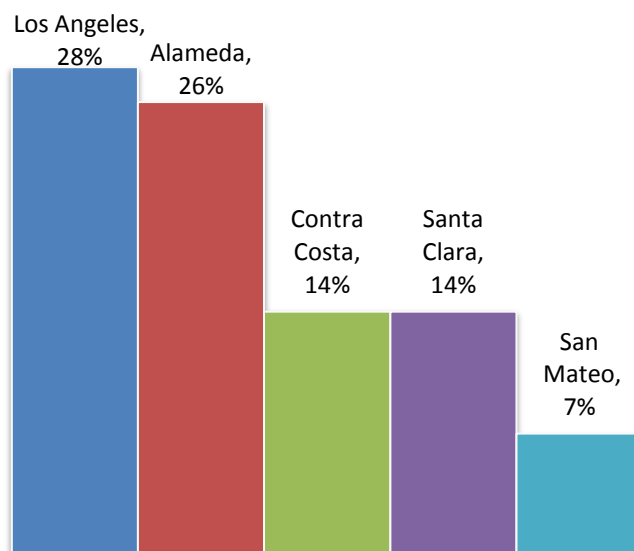|		Description	Data Collection Procedures
Academic Assessments	**Math**	The Mathematics Diagnostic Testing Project (MDTP) tests were designed by a joint workgroup between the California State University (CSU) and the University of California (UC) in 1977. The tests are designed to measure student readiness for a broad range of mathematics courses and to provide students and teachers with diagnostic information about student preparedness.	SMASH scholars were given mathematics assessments to determine readiness for their Fall math courses (aligned with students' previous math class). Tests included: Algebra II, Mathematics Readiness, Calculus Readiness, and Beginning Calculus, and were administered to scholars prior to the start of the SMASH program and again at the end of the 5-week program. Data is reported for 187 of the 214 SMASH scholars who completed both the pre- and post- math assessments.
	Computer Science	Key concepts and skills for students to master within the intro to computer science course were developed by the CS teacher at UC Berkeley. The computer science skills questions asked students to self-report their level of familiarity with 5 different concepts/skills, including structuring databases, designing program interfaces, and understanding debugging and loop controls.	The 5 questions were included in the pre-post SMASH survey which students completed prior to SMASH and at the completion of the program.
Pre-Post SMASH Impact Scholar Survey		The SMASH impact survey was designed by LPFI research department in consultation with research literature in education and psychology. 24 variables were identified as key metrics to examine SMASH impact, including attitudes towards math and science, belonging in STEM, leadership skills, knowledge of college admissions and financial aid, and STEM college and career aspirations (see appendix). Items were then developed to measure each scale. Additional items were included to measure students' perceptions of SMASH impact. Reliability analyses ensured that items were assessing the intended variables.	All scholars completed the pre-SMASH survey prior to the beginning of the program (on the weekend they moved into the dorms) and the post-SMASH survey on the last day of the program. Data is reported for 207/214 students.
Qualitative Data Collection		Open-ended items were added to gain detailed perspectives from scholars on their experiences in SMASH, aspects which had the greatest/least impact on them, and satisfaction with their courses, etc. Focus groups were held with residential staff to examine their perspectives on the impact of the SMASH program (specifically the residential component).	Data were collected on open-ended items in the pre-post SMASH survey administered at the beginning and end of the program. RA focus groups were held with three of the four sites after the conclusion of the program. Focus groups were audio recorded and transcribed.
SMASH Alumni Survey		An alumni survey was designed to capture updated information on the academic progress of SMASH alumni (including college of enrollment, major, PT/FT status, etc.).	The alumni survey was sent to 126 alumni who completed the SMASH program in fall 2011. 41% of scholars (n=51) completed the survey. A shorter survey was conducted with non-responsive scholars to gain data on higher education enrollment and declared major. 39% of scholars completed this survey, for a total of 90 responses. An additional 49 seniors completed a survey asking about intended major and college of attendance in 2012.
SMASH Scholar Demographic and Academic Year Data		Demographic data includes gender, race/ethnicity, income, family educational background. Academic year data includes coursetaking, grades, and in some cases, test scores.	Demographic data were collected from each scholar during the application process and stored securely in a database. Academic year data is collected from scholars 2 times per year and manually entered into the database to ensure tracking and monitoring of scholars.

SMASH ACADEMY DEMOGRAPHIC DATA

SMASH Site	1st Years	2nd Years	3rd Years	Alumni	Total Scholars
University of CA, Berkeley	28	24	23	151	226
Stanford University	24	30	26	25	105
University of CA, Los Angeles	29	0	0	0	29
University of Southern CA	30	0	0	0	30
Total Scholars	111	54	49	176	390

Race/Ethnicity

- 1% Other
- 25% African American
- 53% Latino
- 15% Southeast Asian
- 6% Mixed Race
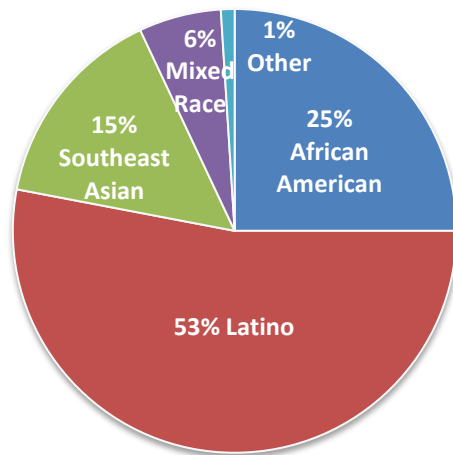
Top 5 Counties of Residence

- Los Angeles, 28%
- Alameda, 26%
- Contra Costa, 14%
- Santa Clara, 14%
- San Mateo, 7%

GENDER

Male	50%
Female	50%

ACADEMIC DATA

Average Current Math Grade	B
Average GPA	3.74

SOCIOECONOMIC FACTORS

Free/Reduced Price Lunch Eligibility	76%
Average Household Income	$55,000
Average Household Headcount	5
First Generation College	78%
Both FRPL & First Generation	64%

SMASH PROGRAM GOALS

GOAL 1: Ensure students are prepared to be academically successful in STEM coursework at top universities.

MATHEMATICS READINESS: 62% of SMASH scholars demonstrated an increase in mathematics readiness.

- Among students who demonstrated growth from pre-SMASH to post-SMASH:
  - Students averaged 5 more items correct on post exam
  - 37% improved with 3-5 more items correct
  - 26% improved with 8+ more items correct
- 5% of students had no change in performance, and 33% decreased in performance by an average of 1-2 items
- Over 70% of students demonstrated increases on the Math Analysis and Beginning Calculus exams, while fewer students demonstrated increases in Algebra II and Calculus Readiness
- Students who demonstrated lower pre-test scores (0-50%) were more likely to demonstrate increases on the post-test than students who had higher pre-test scores (51-100%)

COMPUTER SCIENCE SKILLS INVENTORY: 66% of SMASH scholars had never taken a computer science course.

- SMASH scholars a demonstrated significant increase in computer science skills, including:
  - Increased understanding of how conditionals and loops control codes (28 percentage points)
  - Increased ability to design and program a basic user interface (27 percentage points)

TECHNOLOGY SKILLS AND KNOWLEDGE: SMASH scholars demonstrated a significant increase in technology skills and knowledge.

- Graduates demonstrated an increase in computer software skills, including Word, PowerPoint, and Excel.

"My tech class had the biggest impact on me and I have learned that I have an interest in computer science."

3rd year SMASH
Berkeley scholar

SMASH PROGRAM GOALS

GOAL 2: Ensure students develop skills and access support networks necessary to succeed in STEM in higher education.

SELF-EFFICACY IN MATH & SCIENCE: Over 90% of scholars believed they are capable of doing well in math and science.
- SMASH scholars demonstrated a small, yet non-statistically significant, increase in self-efficacy in science (Diff= .04) and a small but insignificant decrease (Diff=-.01) in self-efficacy in mathematics.

SCHOLAR IDENTITY: Over 90% of scholars indicated that being a scholar is an important part of their identity.
- Students entered SMASH highly-identified as scholars. Scholar identity increased slightly from pre-SMASH (M=4.34) to post-SMASH (M=4.41). The difference was non-significant.

ACCESS TO MENTORS IN STEM: 75% of scholars indicated that they have at least one mentor who they talk to about their college/career goals.

ACCESS TO HIGHER EDUCATION SUPPORT NETWORKS
- Through a partnership with Beyond 12, 49 SMASH seniors and alumni gained access to a support network offering tracking and coaching of all scholars.

ACCESS TO NETWORK OF STEM PEERS
- Students demonstrated a significant increase in access to networks of STEM peers, specifically in their sense of belonging within a community of STEM scholars (4 pct. points) and their familiarity with college students and college graduates with degrees in STEM fields (8 pct. points).

"The greatest component of SMASH was that I was in an environment where there were only high-achieving individuals. It made me feel average but I kept going. I now know what it feels like to be in a college class."

1st year SMASH
Stanford scholar

SMASH PROGRAM GOALS

GOAL 3: Ensure students understand the college admissions process and are competitively prepared to apply and be accepted to a 4-year university.

COLLEGE ASPIRATIONS

- Prior to SMASH, 96% of scholars aspired to attend a four-year university after graduation; this percentage increased slightly to 98% post-SMASH.

- Nearly 60% aspired to complete advanced degrees (Master's, Ph.D., MBA, MD) during both pre- and post-SMASH.

- 96% of scholars indicate that attending college is very important to them.

INTEREST IN COLLEGE/UNIVERSITIES

- Students began SMASH with well-defined ideas for the colleges/universities they aspire to attend. The vast majority of students listed high-prestige four-year universities.

- A small percentage of students (25%) demonstrated a difference between schools they aspired to attend and schools they thought they were "most likely" to attend, with the aspirational schools higher in prestige.

- 18 students' aspirations for colleges they want to attend increased in prestige/competitiveness after graduation.

- 120 students (58%) aspired to attend a SMASH university site at post-survey.

"[SMASH] motivated me to continue pursuing my dreams of going to college because of the feeling of independence and freedom."

1st year SMASH
USC scholar

UNDERSTANDING OF COLLEGE APPLICATION PROCESS

- SMASH scholars' knowledge of the college application process increased significantly after completing the program.
- Students increased by 20 percentage points in their preparedness for successfully completing college applications and by six percentage points in their understanding of the "A-G" requirements for admission to UC/CSU.

FAMILIARITY WITH FINANCIAL AID APPLICATION PROCESSES

- SMASH scholars demonstrated a large and significant increase in their familiarity with financial aid and financial aid application processes over the course of the program.
- Students demonstrated a 31 percentage point increase in knowledge about how to research scholarships and a 24 percentage point increase in knowledge about student loans and how to apply for them.
- Students also became more familiar with how to apply for financial aid (FAFSA), increasing 20 percentage points after completing the program.

COMFORT WITH COLLEGE TRANSITIONS

- Over the course of the SMASH program, students became more comfortable with being away from home and living on a college campus (84% to 95%).
- 102 of students indicated that the residential component of SMASH assisted with improving their comfort level for leaving home to attend college in gaining independence, demystifying the experience of living in a college dorm, and experiencing living away from parents.

"I learned so much about applying to college. It will help me so much in the future when I actually start applying."

1st year SMASH Stanford scholar

SMASH PROGRAM GOALS

GOAL 4: Instill social responsibility, critical thinking, civic awareness, and leadership in all students.

LEADERSHIP SKILLS

- Students demonstrated a large, significant increase in their leadership skills after completing SMASH.
- An eight percentage point increase was demonstrated in students' confidence in taking on leadership roles and comfort in being persuasive and assertive when working with peers.

CRITICAL THINKING

- Prior to SMASH, students demonstrated high levels of self-reported critical thinking skills. There were slight gains from after SMASH in students' abilities to examine multiple viewpoints and sources of evidence before reaching conclusions and to evaluate arguments and theories.

CULTURAL COMPETENCY

- While students began SMASH with high levels of self-reported cultural competency, they demonstrated a significant increase in their cultural competency over the course of the program.
- Specifically, students increased their comfort level in interacting with diverse peers by 6 percentage points.

SOCIAL JUSTICE ORIENTATION

- Students entered SMASH highly identified with values of social justice and the desire to utilize their knowledge to impact their communities. Students demonstrated an increase in social justice after completing the program.
- Specifically, students' beliefs that challenging injustice is important increased 3 percentage points and their desire to use STEM knowledge to solve problems within their communities increased by 1 percentage point.

"Classes such as scientific writing and scientific research made me aware of the different aspects of how science can help others."

1st year SMASH Berkeley scholar

SMASH PROGRAM GOALS

GOAL 5: Develop and reinforce students' STEM interests, attitudes, and aspirations.

KNOWLEDGE OF STEM FIELDS

- The vast majority (over 98%) of students entered SMASH knowing what STEM stands for and the fields that comprise STEM. Their aspirations and interests in specific STEM fields changed slightly from pre-post.

ATTITUDES TOWARDS MATH & SCIENCE

- Scholars entered SMASH with overwhelmingly positive attitudes towards math and science. Students demonstrated a slight increase in positive attitudes from pre-SMASH to post-SMASH in math and science.
- Students were more likely to indicate their belief that math and science are "fun" rather than boring, in the post-SMASH condition.

IDENTIFICATION WITH MATH & SCIENCE

- Students were very highly identified with both math and science prior to SMASH and over 95% believed math was important and useful pre-SMASH.
- Despite slight decreases, over 90% of all scholars believed math and science were important, useful, and indicated that they cared about their success in these subjects.

"My biology class…was a first time experience for me and it became a subject that really attracted my attention and interest."

1st year SMASH
USC scholar

INTEREST IN PURSUING ADVANCED STEM COURSEWORK

- Over 3/4 of students entered SMASH intending to take an AP or advanced STEM course in the fall (78%). This number fell slightly to 76% after the 5-week program.
- When specifically discussing computer science courses, only 23% of students planned to take a computer science course in the fall, and this percentage increased slightly to 25% after SMASH.

STEM COLLEGE ASPIRATIONS

- The vast majority of students entered STEM with the demonstrated desire to pursue STEM education in college. SMASH scholars demonstrated an increase in their desire to pursue a STEM degree in college, with 81% indicating their plans to declare a STEM major.
- While only 23% of students entered SMASH intending to study computer science in college, this percentage increased to 34% after the program.

STEM CAREER ASPIRATIONS

- The vast majority of students entered SMASH with the desire to pursue careers within STEM fields.
- At the completion of the program, 84% of scholars indicated the desire to pursue a career in a STEM field and could imagine themselves working within the fields of science, technology, engineering, or mathematics.
- While only 21% of scholars initially indicated the desire to pursue a career in computer science, this percentage jumped to 31% post-SMASH.
- 119 students aspired to the same career from pre-post. Eight percent of students gained more specificity from pre to post, with a somewhat related career. For example, a student may have indicated on their pre-survey they wanted to be a scientist, but indicated chemist on their post-survey.

"The Speaker Series had the greatest impact on me because I got to meet people who actually "did it." I got to meet people of my skin color who accomplished their goals."

2nd year SMASH
Stanford scholar

SMASH PROGRAM GOALS

GOAL 6: Monitor and track enrollment, persistence, and graduation in STEM in higher education.

ALUMNI DEMOGRAPHICS AND HIGHER EDUCATION ENROLLMENT DATA

- As of June 2012, SMASH had a total of 176 alumni (students who both completed the SMASH program and graduated from high school).
- The majority of SMASH alumni are Latino (53%), with another 25% African American, 8% Southeast Asian, and 7% each of Mixed Race/Multiple Response, and Other (Native American, Pacific Islander).
- The 176 alumni are roughly equivalent in gender: Female (51%), Male (49%).
- Roughly half of SMASH alumni qualified for Free/Reduced Price Lunch, and 52% were first generation college students.
- 100% of SMASH scholars graduated high school, with 96% intending to attend four-year universities and 80% intending to major in a STEM field.
- 88% of SMASH alumni are currently enrolled full-time in a four-year college.
- 42% are enrolled in "top 50 highest-ranking" universities.
- 48% of SMASH alumni are currently declared STEM majors.
- 83% of SMASH 2012 alumni intend to declare STEM majors.

SMASH ALUMNI (2008-2011)		% of Alumni
College Enrollment Status	Enrolled full-time	88%
	Enrolled part-time	10%
	Not currently enrolled	1%
Courseload	1-3 courses	26%
	4-5 courses	62%
	6-7 courses	12%
Type of College	2-year college	10%
	4-year college/university	88%
	Other/Not Enrolled	2%
Current Declared Major	STEM Major	48%
	Non-STEM Major	12%
	Undecided	40%

ALUMNI COLLEGE ATTENDANCE DATA

2008-2011 SMASH Alumni Top Colleges of Attendance	
UC Berkeley	8
US Davis	7
Stanford	6
UC Santa Cruz	5
Middlebury	3
University of San Francisco	3
San Francisco State	3
San Jose State	3

2008-2011 SMASH Alumni Top College Majors	
Engineering	17
Social Sciences	15
Biological Sciences	10
Business or Law	5
Computer Science	2
Education	2

STUDENT PERCEPTIONS OF SMASH IMPACT

OVERALL IMPACT OF SMASH

SMASH students were asked to describe their perceptions of the impact of the SMASH program through multiple-choice questions and open-ended items. Their responses demonstrate students' beliefs about the impact of the SMASH program on their academic preparation, college readiness, and personal development.

88% of scholars believe SMASH is effective in preparing students of color to be successful in STEM in college

79% of scholars felt SMASH increased their confidence in math and science

85% of scholars felt SMASH taught them about college application & admissions

85% of scholars believe SMASH encourages students to become leaders and challenge issues in their community

85% of scholars believe SMASH encourages critical thinking

> *"Being exposed to different schools, professionals, and STEM careers has allowed me to gain more understanding of what path I want to take and reaffirm the future aspirations I have. Also, being a part of something larger than myself has given me a sense of significance - a feeling that I can't exactly find words to articulate, but one that has given me reason to strive to work harder in school and as a member of the community."*
>
> 3rd year SMASH Berkeley Scholar

STUDENT PERCEPTIONS OF SMASH IMPACT

GREATEST POINTS OF IMPACT

23% identified attending the core classes.

45% identified some aspect of the residential component, with 44% of these describing the residential curriculum as most impactful, 41% describing the sense of community as most impactful, and 15% describing living in the dorms as having the greatest impact.

18% identified the sense of community among scholars and staff.

Other impact points, in order, included college success class, living in dorms, public speaking class, and computer science class.

IMPACT OF RESIDENTIAL COMPONENT

Scholars also reported that the SMASH residential component had an impact on their skill development and development of a community of STEM scholars. When asked specifically about the impact of living in campus dormitories, students were most likely to mention gaining independence, and gaining familiarity with what "college is like."

- 78% of scholars reported the SMASH residential program prepared them for the college experience.
- 67% of SMASH scholars believed that SMASH residential helped them improve their study skills, time management, independence and responsibility.
- 82 % of SMASH scholars indicated that the residential component helped them to develop ties with SMASH peers, increasing their support network of peers with similar interests.
- 80% of scholars reported the residential program allowed them to gain role models and mentors.

When asked specifically about the impact of living in campus dormitories during the five-week program:

- 49 students (24%) indicated they gained independence as a result of living in the dorms, and 36 students (17%) reported living in the dorms helped them to see what college is like.
- Another 21 students (10%) indicated living in the dorms helped them learn time management.

How You Can Support Our Work

The research and evaluation team at LPFI examines inequity in access and opportunity across K-12, higher education, and workplace contexts in order to improve the outcomes for underrepresented students in the fields of Science, Technology, Engineering, and Mathematics (STEM).

Our research specifically:

- Documents the impact of STEM enrichment opportunities for high school students of color.
- Examines ways to improve STEM teaching and preparation in K-12 for underrepresented students.
- Examines ways to increase access, enrollment, retention, and graduation rates in STEM for students of color.
- Expands understanding of the college-to-workplace transition for students of color within STEM fields.
- Examines the lack of diversity in STEM workplaces, specifically focusing on biases and barriers for individuals from diverse backgrounds (e.g., race, gender, sexual orientation, religion).

To ensure that LPFI can continue this valuable research, please consider making a gift online today by visiting
www.lpfi.org/support-us
and clicking on "Invest Online Now" in the left hand column.

You can allocate your gift directly to our Research programs by selecting
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APPENDIX 1: MATHEMATICS READINESS SUMMARY CHARTS
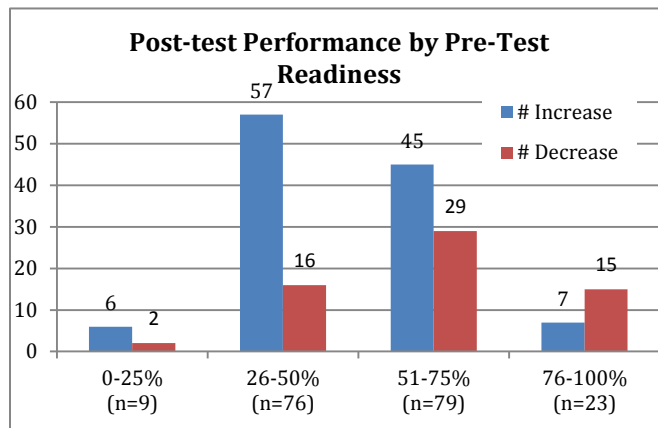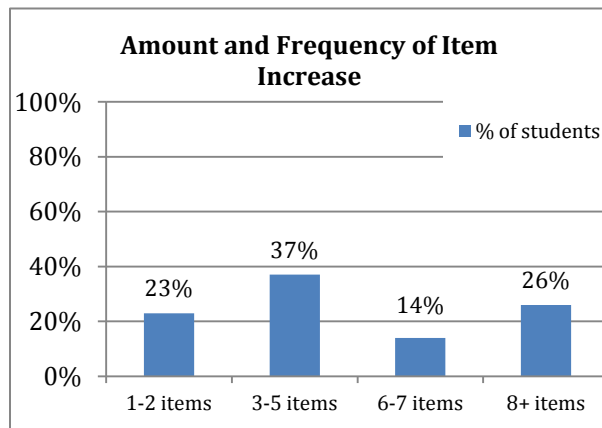
MDTP Pre-Post Mathematics Assessment Data			
	# of students	% of students	Avg. # items (+/-)
Increase (post>pre)	115	62%	+5 items
No Change (post=pre)	10	5%	0 items
Decrease (post<pre)	62	33%	-3 items
TOTAL SAMPLE	187	--	+2 items

Amount and Frequency of Item Increase

■ % of students

- 1-2 items: 23%
- 3-5 items: 37%
- 6-7 items: 14%
- 8+ items: 26%

Post-test Performance by Pre-Test Readiness

■ # Increase
■ # Decrease

	0-25% (n=9)	26-50% (n=76)	51-75% (n=79)	76-100% (n=23)
# Increase	6	57	45	7
# Decrease	2	16	29	15

	Pre-SMASH Mean Score	Post-SMASH Mean Score	Difference (Pre-Post)	Statistically Significant Difference?
GOAL #1				
Technology Skills	3.84	4.11	+0.27	Yes (p<.00)
Computer Science Knowledge	1.44	2.36	+0.92	Yes (p<.00)
GOAL #2				
Network of STEM Peers	3.35	3.48	+0.13	Yes (p<.01)
Access to STEM Mentors	4.04	4.05	+0.01	No
Self-Concept/Self-Efficacy Math	4.24	4.23	-0.01	No
Self-Concept/Self-Efficacy Science	4.14	4.18	+0.04	No
Scholar Identity	4.34	4.41	+0.07	No
Belonging in STEM	3.96	3.97	+0.01	No
GOAL #3				
Knowledge of College Admissions Process	3.88	4.05	+0.17	Yes (p<.00)
Knowledge of Financial Aid Process	3.11	3.73	+0.62	Yes (p<.00)
GOAL #4				
Leadership Skills	3.74	3.90	+0.16	Yes (p<.00)
Cultural Competence	4.31	4.47	+0.16	Yes (p<.01)
Social Justice Orientation	4.34	4.41	+0.07	No
GOAL #5				
STEM College Aspirations	4.27	4.37	+0.10	No
STEM Career Aspirations	4.34	4.36	+0.02	No
Computer Science Aspirations	2.91	3.02	+0.11	Yes (p<.05)
Access to STEM Role Models	3.62	3.86	+0.24	Yes (p<.00)
Attitudes towards Math	4.03	4.06	+0.03	No
Attitudes towards Science	4.24	4.26	+0.02	No
Identification with Math	4.67	4.69	+0.02	No
Identification with Science	4.56	4.52	-0.04	No

APPENDIX 3: SMASH IMPACT VARIABLES

Academic Preparation (Knowledge and Skills)	
Mathematics Content Knowledge	What level of mathematics knowledge do students have? (pre-post test)
Science Content Knowledge	What level of science knowledge do students have? (pre-post test)
Technology Skills	What level of skill do students have with various applications/usages of technological equipment, software, etc.?
Computer Science Knowledge	What level of knowledge do students have about various key elements of computer science?
College Preparation and Aspirations	
Understanding of College Entry Requirements and Application Processes	How familiar are students with college entry requirements (e.g., coursework), and how comfortable are they with the application process (e.g., essay)?
Familiarity with Financial Aid	How familiar are students with financial aid options and procedures? (e.g., FAFSA, scholarships)
Interest in Colleges/Universities	What colleges are students familiar with and are they interested in applying to?
College Aspirations	What level of desire and ambition do students have to attend college and what is the highest degree they aspire to?
Residential Experience Items (mostly post-items)	What outcomes are associated with the residential program and curriculum?
STEM Interest and Aspirations	
Knowledge of STEM Fields	What level of knowledge do students have about STEM fields and occupations?
Interest in Pursuing Advanced STEM Coursework	What level of interest do students have in pursuing advanced level STEM coursework?
STEM College Aspirations	What level of desire and ambition do students have to enter a STEM major in college?
STEM Career Aspirations	What level of desire and ambition do students have to enter career within STEM fields?
Explicit Attitudes towards Math and Science	How much do students like versus dislike these subjects?
Explicit Identification with Math and Science	How important are these subjects to students' sense of self?
Social Support (Access to Networks of Support)	
Access to Role Models in STEM	How many role models (both gender, racial/ethnic) do students have that have achieved success in STEM?
Access to Mentors in STEM	Do students have access to mentors within STEM fields?
Network of STEM Peers	How large and how cohesive are student's personal network of STEM-focused students of color (high school? College? Graduate school?)
Individual Development	
Self-Efficacy in Math and Science	To what extent do students believe they can successfully engage in and complete coursework and tasks in math and science?
Scholar Identity	To what extent do students identify themselves as scholars versus other salient identities?
Belongingness in STEM	To what extent do students feel like they belong in STEM studies?
Leadership Skills	How do students rate themselves on a measure of leadership skills (both among peers and within community)?
Critical Thinking Skills	How do students rate themselves on an assessment of their own critical thinking skills?
Social Justice Orientation	What level of understanding do students have about how STEM study can apply to real-world social justice issues?

Which SMASH component had the greatest impact on you?

Horizontal bar chart — Number of Students (0 to 50):

- Core Classes: ~48
- Residential Curriculum: ~41
- Sense of Community: ~38
- College Success Class: ~16
- Living in Dorms: ~14
- Public Speaking Class: ~11
- Computer Science Class: ~10
- Everything in SMASH: ~8
- Role Models: ~6
- Network of STEM Peers: ~5
- Speaker Series: ~4
- Entrepreneurship Class: ~2

Which component of SMASH Residential had the greatest impact on you?

Pie chart:
- Living in Dorms 15%
- Residential Curriculum 44%
- Sense of Community 41%

What impact did living on campus in dorms have on you?

Bar chart (0 to 60):
- Gained Independence: ~49
- Helped See What College Is Like: ~36
- Learned Time Management: ~21
- Able to Experience Living Away From Home: ~17
- No Impact: ~9