

Summer 2013 Math Jam Review

The 2013 Cañada College Math Jam was a week long intensive math preparation program. The program had two primary purposes:

- 1) To assist students to improve their math placement test results.
- 2) To prepare students for their next math course.

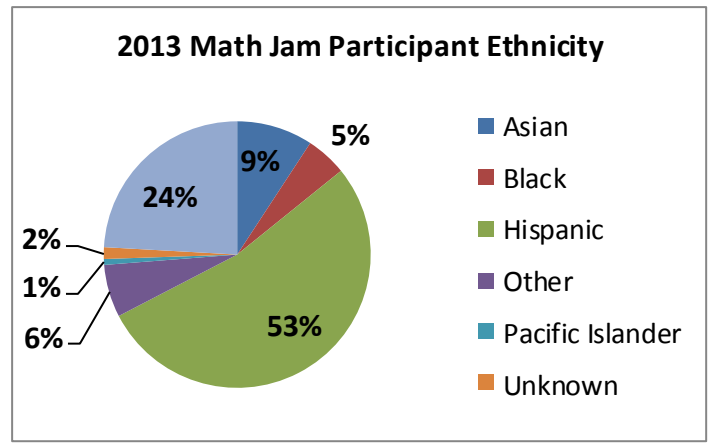
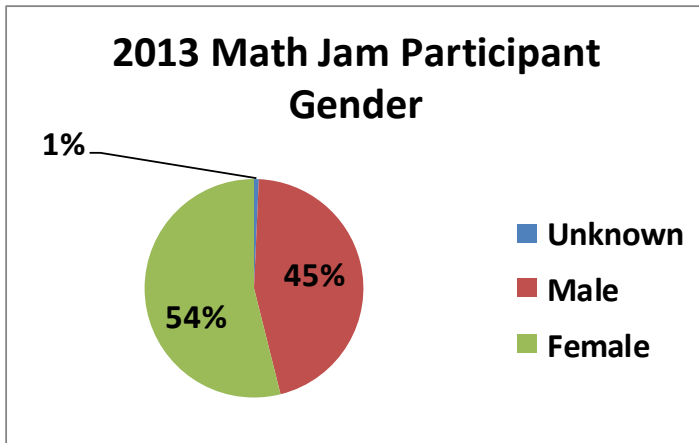
Method

The program provided students the opportunity to improve their math skills in a supportive, self paced, non-judgmental environment. Program participants were placed in cohorts based on their current math level. Each of the cohorts was led by a Cañada College math faculty member and several student tutors who supported the participants. The primary tool used was the MyMathTest software by Pearson Education, Inc. On the first day, each student took an on-line evaluation test for his/her math level. MyMathTest then provided the students a list of the areas that the student should work on. The students then systematically worked through the list. The instructor and the assigned tutor monitored the student’s progress and made themselves available to answer questions or work through problems with the students. Faculty and tutors also facilitated activities designed to increase student engagement and interaction.

Participant Demographics

Consistent with previous Math Jams, the majority (53.2%) of the 2013 Math Jam participants indicated “Hispanic” as their ethnicity. The majority (53.9%) of the participants also indicated their gender as “female”.

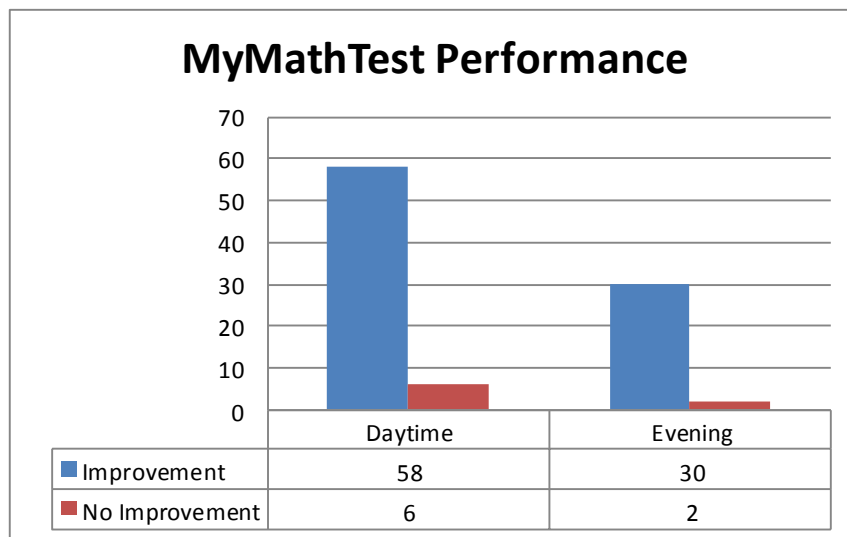
	<u>Female</u>	<u>Male</u>	<u>Unknown</u>	<u>Total</u>	<u>Ethnicity (%)</u>
Asian	9	4	0	13	9.2%
Black	3	4	0	7	5.0%
Hispanic	41	34	0	75	53.2%
Other	3	6	0	9	6.4%
Pacific Islander	1	0	0	1	0.7%
Unknown	1	0	1	2	1.4%
White	18	16	0	34	24.1%
	76 / (53.9%)	64 / (45.4%)	1 (.7%)	141	100%



Results - MyMathTest

Prior to the 2013 Math Jam, program faculty met to review program elements including the pre and post tests which would be administered to the participants. Faculty reviewed and revised the MyMathTest instruments to ensure that the content was appropriate for each cohort level and consistent with the learning objectives in the corresponding math courses at Cañada College. Faculty also agreed that day and evening cohorts at the same level (811, 110, 120, etc.) would administer the same test instruments.

Among students who completed both the MyMathTest pre-test and post-test, over 90 percent (91.6%) improved their test scores.



Math Jam Program Completion

Participants were only considered to have completed the program if they attended at least 4 of the 6 days the program was offered. Overall, eighty-four percent (84%) of the participants completed the program. The completion rate was nearly identical for the day program (84.62%) and the evening program (82.00%). Completion rates were also consistent across ethnic groups, with no group having a completion rate lower than 75%.

Results - Math Placement Tests

Students were offered the opportunity to retake the institution’s Math placement exam on the last day of the Math Jam program. Fifty Four percent (54%) of the students who took the math placement exam became eligible to enroll in a higher level math course as a result of improvement on the exam.

MJ Cohort	Tested	“Jumped”	No Jump	Jump Rate
811	10	4	6	40%
110	17	7	10	41%
120	16	8	8	50%
120+	8	6	2	75%
130-222	5	5	0	100%
251	0	0	0	NA
Total	56	30	26	54%

Note: “Jumping” courses enables students to complete the math sequence in a shorter amount of time. Previous research suggests that Math Jam participants who “jumped” performed just as well, or better, than their peers in subsequent math courses.

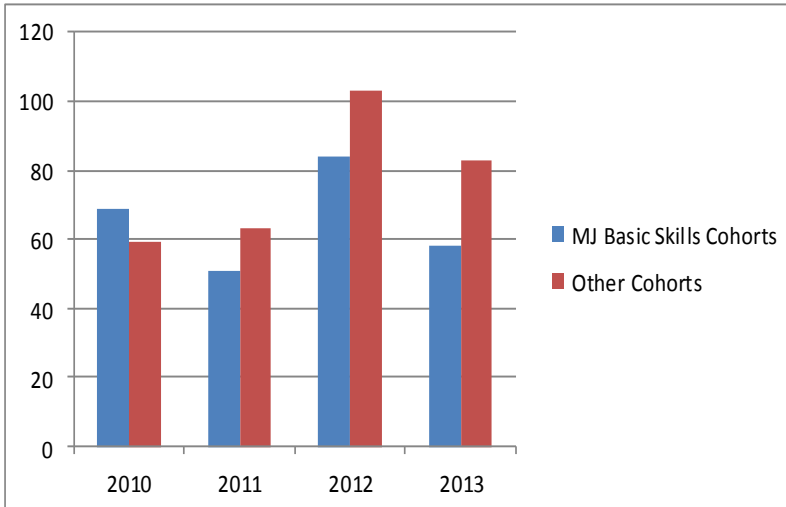
Student Perception - Previous Math Jam Participation

Participants in the 2013 Math Jam indicated that previous participation in the Math Jam program had a positive impact on their performance in subsequent math courses and on their relationships with fellow students and faculty. They also indicated that as a result of their participation they were more likely to use other STEM Center resources and were more comfortable participating in study groups or tutoring sessions.

As a result of participating in Math Jam previously ... <i>(5 = Strongly Agree, 4 = Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree)</i>	n	Mean
I performed better in a subsequent math course than I would have had I not participated in Math Jam	32	3.90
I developed a supportive relationship with fellow student(s) which continued after Math Jam	32	4.19
I was more comfortable participating in study groups or tutoring sessions	32	4.03
I was more comfortable engaging my math instructor (asking questions or asking for support)	32	4.06
I was more likely to use other STEM center resources (tutoring services, MESA, study rooms, STEM Field Trips, STEM workshops, etc.).	31	4.10

Cohort Distribution

In 2010 the majority (54%) of the students participating in the Math Jam program were enrolled in the basic skills cohorts (811 and 110). However, during subsequent Math Jams enrollment shifted to the college level math cohorts. The proportion of the Math Jam participants enrolled in the basic skills cohorts remained relatively consistent from 2011 to 2013 (between 42% to 45% of the Math Jam population each year).



Math Jam (Year)	811 & 110 Cohorts	120 - 251 Cohorts	Total*
2010	69 (53.91%)	59	128
2011	51 (44.74%)	63	114
2012	84 (44.92%)	103	187
2013	59 (41.84%)	82	141

* Participant total may be lower. Some students participated in day and evening program.

Why did the proportion of students in the basic skills cohorts decrease between 2010 and 2013?

Several factors including random variation could explain, or contribute to the explanation, of the decrease in the proportion of students participating in the Math Jam basic skills cohorts between 2010 and 2013. One factor may be the decrease in the number of students enrolling in basic skills math courses at Cañada College. As the table below shows, enrollment in the basic skills courses has decreased in each year since 2010.

Fall	Total Math Enrollments	110, 111, 112, 811 Enrollments	% of all Fall Math Enrollments	120 and Above Enrollments	% of all Fall Math Enrollments
2010	1713	682	39.8%	1031	60.2%
2011	1748	657	37.6%	1091	62.4%
2012	1942	640	33.0%	1302	67%
2013*	1899	548	28.2%	1351	71.8%

In 2010 the 811 and 110 Math Jam cohorts represented 10.1% of the enrollments in the 110 and 811 courses that Fall. In 2013 the 811 and 110 Math Jam cohorts represented 10.7% of the enrollments.

Another factor contributing to the increase in the proportion of students participating in the college level math cohorts may be the desire of students to participate in Math Jam multiple times. "Repeaters" may be less likely to be enrolled in basic skills cohorts, having already completed 811 or 110.*

Finally, the addition of new non-basic skills cohorts (such as the stats cohort) may also have contributed to the increase in the proportion of students enrolled in college level math cohorts.

* CALSTEP intends to examine the characteristics of program repeaters, and outcomes for repeaters in a future brief related to the effects of CALSTEP Program participation.

Summary

The 2013 Math Jam provided 141 Cañada College students the opportunity to improve their math skills in a supportive, self paced, non-judgmental environment. Although the program is open to all Cañada College students the majority of the participants came from groups which have been traditionally disadvantaged in STEM with 53.2% of the 2013 Math Jam participants indicating “Hispanic” as their ethnicity and 53.9% of the participants indicating “female” as their gender.

The purpose of Math Jam is to assist students to improve their math placement exam results, and prepare for their next math course. The results of the 2013 Math Jam suggest the program is accomplishing those objectives. Over 90% of the participants who completed the pre and post test instrument (MyMathTest) at math jam showed improvement in their scores. Additionally, the majority of students (54%) who took the math placement test at the end of the 2013 Math Jam became eligible to enroll in a higher level math course*.

**Note: Previous research suggests that math jam participants who “jump” a level of math, as a result of improving their placement scores, perform as well or better than their peers in their subsequent math course. Additionally previous research indicates that Math Jam participants have higher success rates in their subsequent Math courses than their peers (see CALSTEP Brief 1).*

About CALSTEP

The "California Alliance for the Long-term Strengthening of Transfer Engineering Programs" (CALSTEP) is sponsored by the US Department of Education through the Hispanic-Serving Institution Science, Technology, Engineering, and Mathematics (HSI-STEM) program. The CALSTEP project promotes an understanding and appreciation of STEM careers through outreach activities for middle school, high school, and community college students. It addresses the main barriers to the retention and success of students in Science, Technology, Engineering, and Mathematics (STEM) through a combination of intensive preparation for college-level work, multiple entry points and accelerated pathways for students into STEM education, and previously proven academic support strategies.

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