

# MathPath Program Analysis

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Office of Planning and Institutional Research



## Executive Summary

An analysis was conducted to evaluate the effectiveness of the MathPath Achieving the Dream (ATD) program, which took place during Summer 2011 and Summer 2012. MathPath is a non-credit refresher course designed to help students improve their college math skills. The present analysis examined a number of outcomes for students from both terms.

### Major findings:

- Of the 22 students who moved up at least one math level by the end of MathPath in Summer 2011, 12 (54.5%) earned a C or better in that new level within two semesters (i.e., by end of Spring 2012).
- Of the 22 students who moved up at least one math level by the end of MathPath in Summer 2011, 7 (31.8%) earned a C or better in College Algebra within three semesters (i.e., by end of Summer 2012).
- Of the 22 students who moved up at least one math level by the end of MathPath in Summer 2011, 9 (40.9%) earned a C or better in College Algebra within four semesters (i.e., by end of Fall 2012).
- Of the 75 students in MathPath during Summer 2012 who met criteria for analysis, 29 (38.7%) moved up at least one math level by the end of MathPath.
- Among Summer 2012 MathPath students, post-MathPath scores on the COMPASS Pre-Algebra test (M = 51.24) were significantly higher than those on the pre-MathPath test (M = 42.07).
- Among Summer 2012 MathPath students, post-MathPath scores on the COMPASS Algebra test (M = 32.85) were significantly higher than those on the pre-MathPath test (M = 26.71).
- Of the 29 students who moved up at least one math level by the end of MathPath in Summer 2012, 7 (24.1%) earned a C or better in that new level within two semesters (i.e., by Spring 2013).
  - Two other students were enrolled in the next level during Spring 2013 but did not yet have a grade, as of the date the grade data were extracted.

## Data Analysis Report

An analysis was conducted to evaluate the effectiveness of the MathPath Achieving the Dream (ATD) program, which took place during Summer 2011 and Summer 2012. MathPath is a non-credit refresher course designed to help students improve their college math skills. The present analysis examined a number of outcomes for students from both terms.

### Summer 2011 Cohort

Sixty-eight students enrolled in MathPath during Summer 2011 and 43 students took math placement tests both prior to MathPath and at the end of MathPath (one student enrolled twice and took pre- and post-tests both times). Of those 43 different students completing a pre- and a post-test, 22 (51.2%) improved at least one math level after participating in the program. These 22 students were tracked to determine their progression through the math sequence.

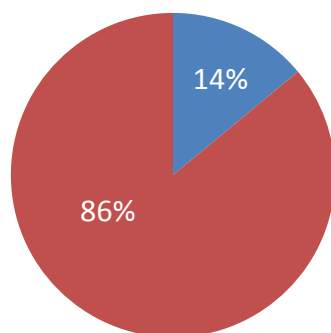
Results for the Summer 2011 cohort are described below:

#### *Enrollment and Success in New Math Level (within two semesters)*

Of the 22 students who moved up at least one math level by the end of MathPath, 14 (63.6%) enrolled in that new level within two semesters (i.e., by end of Spring 2012). Of those 14 students, 12 (85.7%) earned a C or better in the course (see Figure 1 below). These 12 students who enrolled in and earned a C or better in that new level within two semesters represent an overall percentage of 54.5% of all 22 students.

**Figure 1. Percentage of 2011 MathPath Students Earning a C or Better in New Level within Two Semesters**

■ Lower than C ■ C or Better



### *Enrollment and Success in College Algebra (within three semesters)*

Of the 22 students who moved up at least one math level by the end of MathPath, 7 (31.8%) enrolled in College Algebra within three semesters (i.e., by end of Summer 2012). All 7 (100.0%) of those students earned a C or better in the course, indicating that an overall percentage of 31.8% of the 22 students enrolled in and earned a C or better in College Algebra within three semesters.

### *Enrollment and Success in College Algebra (within four semesters)*

Of the 22 students who moved up at least one math level by the end of MathPath, 10 (45.5%) enrolled in College Algebra within four semesters (i.e., by end of Fall 2012). Of those 10 students, 9 (90.0%) earned a C or better in the course, revealing that an overall percentage of 40.9% of the 22 students enrolled in and earned a C or better in College Algebra within four semesters.

## **Summer 2012 Students**

One hundred thirty-eight students enrolled in MathPath during Summer 2012 and 75 of those took both pre- and post-MathPath placement tests and met the attendance criterion for inclusion in analysis (i.e., attended at least 6 of 8 classes). These 75 students were included in the present analysis. Although the analysis only included these 75 students, it is important to note that the total number of enrolled students more than doubled from 2011 to 2012.

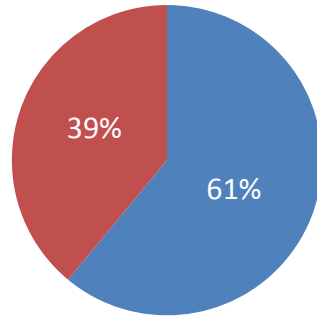
Results for the Summer 2012 cohort are described below:

### *Math Placement Improvement*

Of the 75 students in MathPath during Summer 2012 who met criteria for analysis, 29 (38.7%) moved up at least one math level by the end of MathPath. Figure 2 below shows the percentages of those who did and did not improve their placement.

**Figure 2. Percentage of 2012 MathPath Students Increasing At Least One Math Level**

■ No Increase   ■ Moved Up At Least One Level



*Pre- and Post-MathPath Comparison on COMPASS Tests*

Among Summer 2012 MathPath students, post-MathPath scores on the COMPASS Pre-Algebra test were significantly higher than those on the pre-MathPath test,  $t(54) = -3.45, p = .001$ . Students' post-MathPath scores on the COMPASS Algebra test were also significantly higher than their scores prior to MathPath,  $t(74) = -5.72, p < .001$ . Table 1 below shows the results for both comparisons.

*Table 1. Mean Scores on COMPASS Pre-Algebra and Algebra Tests (Summer 2012 Cohort)*

Measure		Matched Sample Size (N)	Mean (Std. Deviation)	p-value
Pre-Algebra*	Pre-test	55	42.07 (18.05)	.001
	Post-test	55	51.24 (18.93)	
Algebra*	Pre-test	75	26.71 (11.32)	< .001
	Post-test	75	32.85 (15.92)	

\*Statistically significant difference with a 99% confidence level.

### *Enrollment and Success in New Math Level (within two semesters)*

Of the 29 students who moved up at least one math level by the end of MathPath, 13 (44.8%) enrolled in that new level within two semesters (i.e., by Spring 2013). Two of those students were enrolled during Spring 2013 and did not have grades as of the date on which grade data were extracted. Of the 11 students who enrolled and did have grades by Spring 2013, 7 (63.6%) earned a C or better in the course, indicating that an overall percentage of 24.1% of all 29 students enrolled in and earned a C or better in that new level within two semesters.

### **Conclusions**

Findings suggest that MathPath helped a number of students improve their math placement, as nearly 40% of the students moved up one or more levels in developmental math placement by the end of the course. This result is critical when considering the College's efforts to help students progress through the developmental sequence as quickly as possible. For these students, a two-week refresher course saved them at least an entire semester's worth of coursework.

Another encouraging finding pertains to MathPath students' success in the courses in which they enroll. Students from both cohorts who improved their placement and then enrolled in their new level within two semesters had higher success rates in those courses (85.7% for 2011 cohort and 63.6% for 2012 cohort) than the typical rates of 50-60% for developmental math courses. This result suggests that MathPath not only prepares students to enroll in a higher level of math, but also to successfully complete a course at the new level.

Analysis of the actual placement scores revealed that both COMPASS Pre-Algebra and Algebra scores increased significantly by the end of the MathPath course. Interestingly, the post-MathPath mean ( $M = 28.97$ ) on COMPASS Algebra was also significantly higher than the pre-MathPath mean ( $M = 25.51$ ) for students who did not move up a level in their math placement. Although the difference for the COMPASS Pre-Algebra scores was not significant for this group, the post-MathPath mean was higher ( $M = 46.86$ ) than the pre-MathPath mean ( $M = 45.32$ ). These findings suggest that MathPath helps students improve their math abilities, even if they do not advance to the next level in the developmental math sequence.