



FINDINGS

Topic: Assessing the Accelerated Math Path: MATH 45

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Overview

The Math Department would like to take a look into the pre-statistics accelerated path they introduced in 2013. This accelerated path, MATH 45, is intended to provide a shorter alternative to students who are aiming for MATH 80, or similar statistics-heavy transfer level courses, to fulfill their transfer requirement. The traditional path starts from MATH 40 (Elementary Algebra) and works through MATH 60 (Intermediate Algebra) to transfer level math courses.

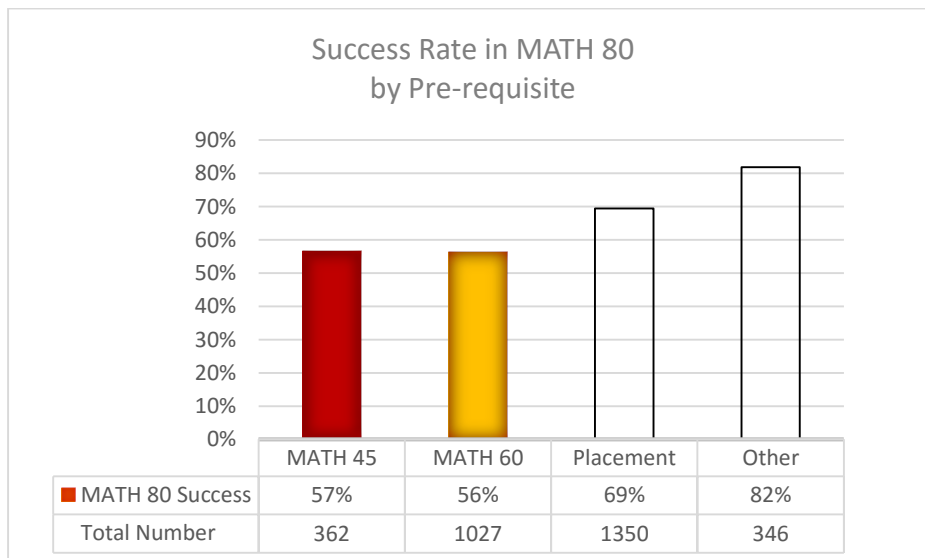
To answer math department’s question, these three sub-questions were defined:

1. How is MATH 45 preparing students for transfer-level courses, compared to traditional path?
2. What is the throughput of the students who chose MATH 45, compared to MATH 40?
3. Is MATH 45 equitable?

Methodology/Findings

1. Is MATH 45 preparing students for transfer-level courses?

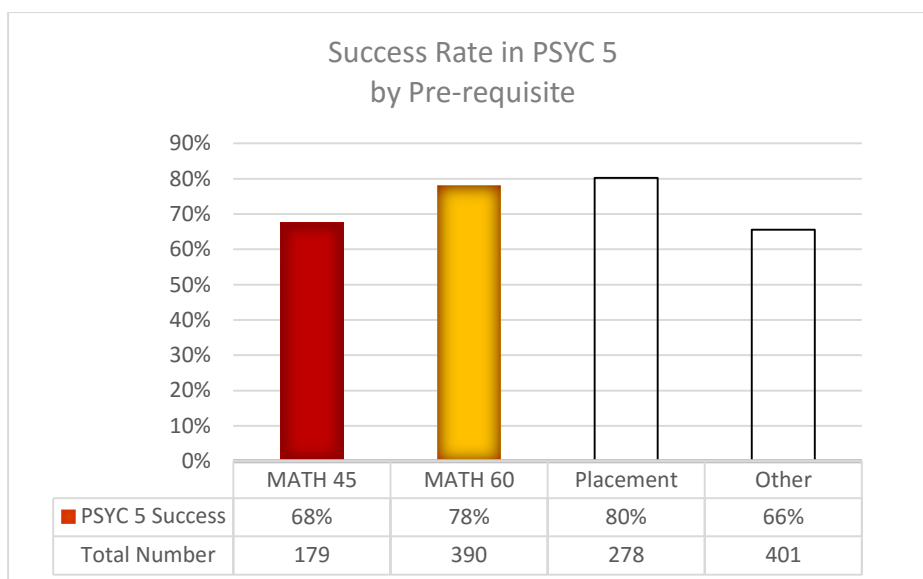
To answer this question, achievement data for all the students who enrolled in MATH 80, PSYC 5, LALS 5, ECON 5, PHIL 12A and ET 50 were looked at; those who enrolled in courses that could have MATH 45 as their prerequisite. The result, however, is only presented for MATH 80 and PSYC 5, due to the small sample size of the students in other courses.



Enrollment data in MATH 80 is limited to fall 2013 to fall 2016 to provide similar time-frame for our comparison. In many cases, by the time they enroll in MATH 80, students might have taken math courses (including transfer level courses) other than MATH 45 and MATH 60. In this study those who had either MATH 45 (N=362) or MATH 60 (N=1027) as their last math course prior to their enrollment in MATH 80 were selected for analysis.

There is statistically no difference in the success rate of students in MATH 80, whether they have MATH 45 or MATH 60 as their last math course prior to MATH 80; they are practically equal.

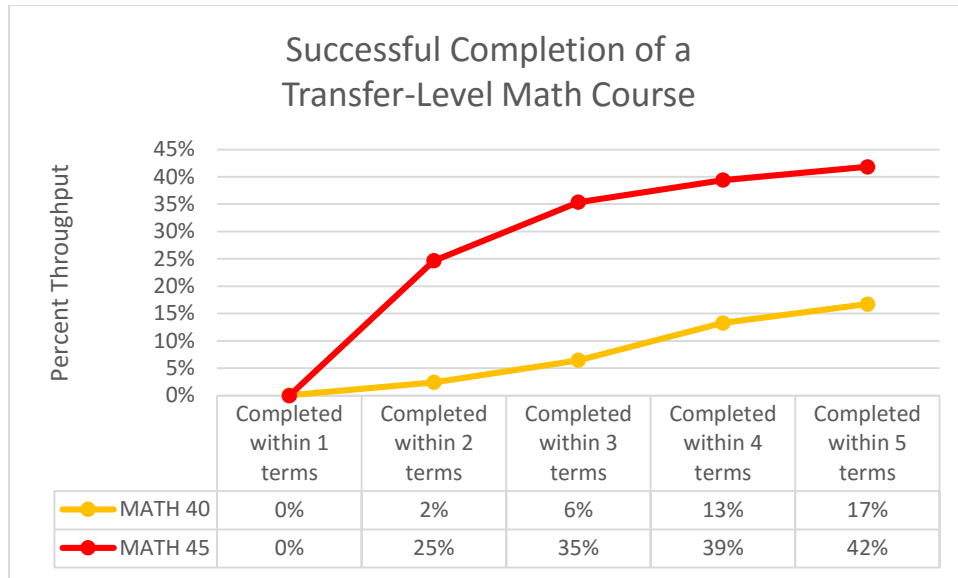
The overall course success rate for all MATH 80 students is around 65%. It is notable, therefore, that course success rates for those who placed directly in MATH 80 is higher than the success rate of students from both the MATH 45 and the MATH 60 preparation groups. Additional insights might come from further research into placement cut-score and success rate in lower level courses, and its impact on the throughput. Other topics of interest are the impact of multiple-measure implementation on success rate, as well as research on differences in preparation, by examining prior math course work (examining high school transcripts data, for example).



Success rate in PSYC 5 on the other hand, shows a decrease in MATH 45 graduates readiness: MATH 45 graduates (N=179) have 68% success rate in PSYC 5, compared to 78% for MATH 60 graduates (N=390).

2. What is the throughput, from enrolling in MATH 45 or 40, to successfully completing a transfer-level course?

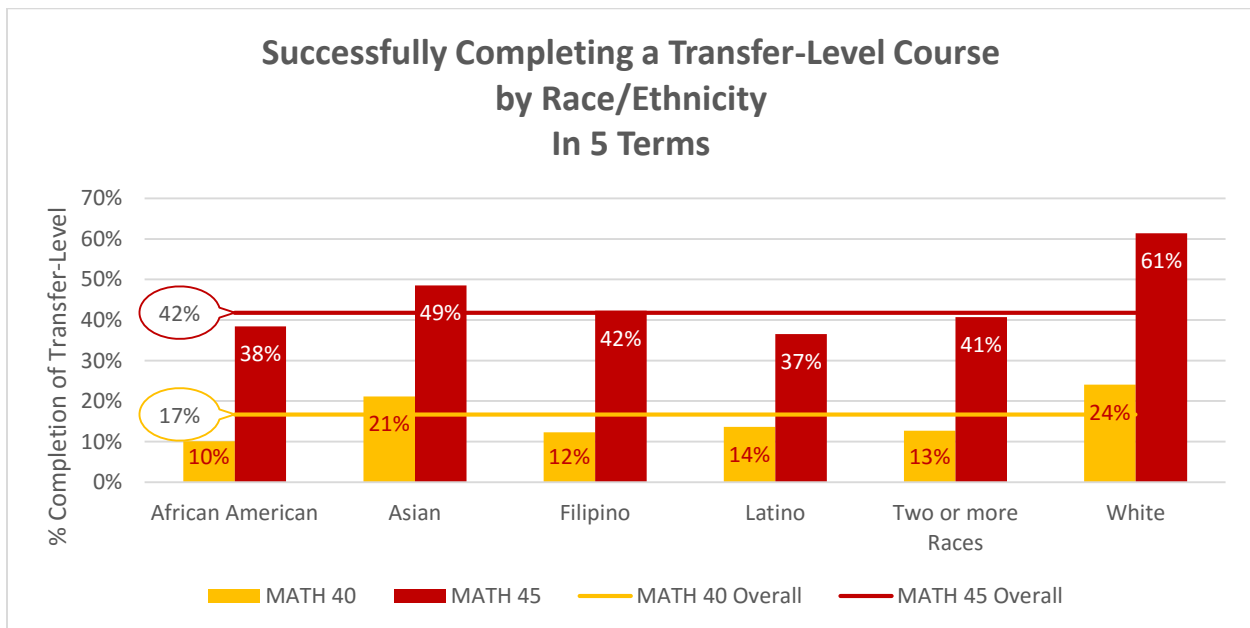
For this study, students who took MATH 45/45X (N=495) or 40/840 (N=4277) for the first time between Fall 2012 and Summer 2015 we selected. "First time students" here means students who had not taken either of MATH 45, 45X, 40 or 840 in prior terms. These cohorts were followed for a limited number of terms, to see whether they successfully completed a transfer-level course. Transfer level courses included in this study are: MATH 70, 75, 80, 90, 92, 95, PSYC 5, ECON 5, LALS 5, PHIL 12A, ET 50.



Of those who enrolled in MATH 45/45X, 42% successfully complete a transfer-level course within 5 terms (including summers); for those who enroll in MATH 40/840 this is 17%. It is notable that within 2 terms, 25% of MATH 45 enrollees successfully complete a transfer-level math course, and within a year over a third of them complete their transfer-level course.

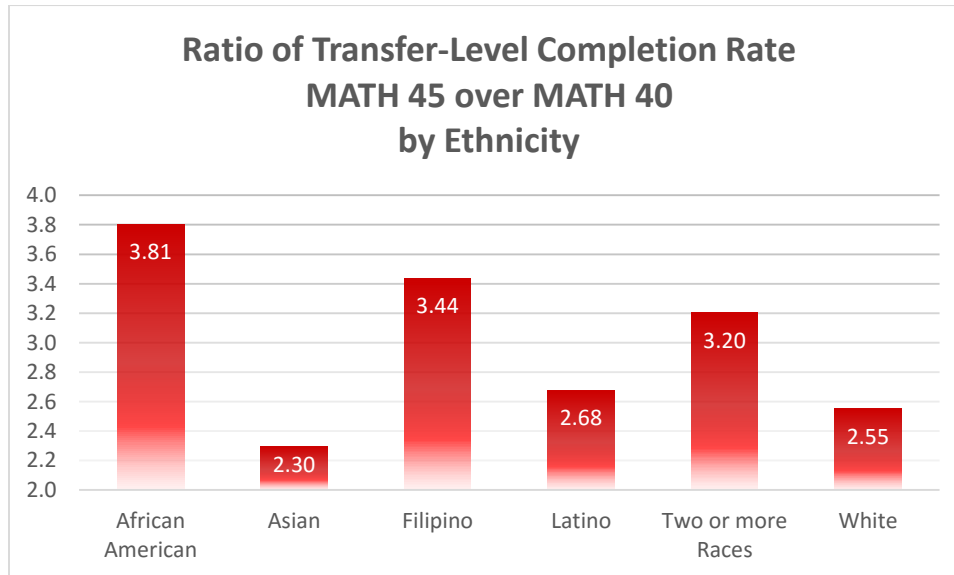
3. Is MATH 45 equitable?

As the answer to the second question suggests, students from all ethnic backgrounds benefit from the accelerated path. There is a strong and robust increase in throughput for all ethnic groups.



	African American	Asian	Filipino	Latino	Two or more Races	White	Total
MATH 40 (N)	475	837	333	1,363	275	865	4,277
MATH 45 (N)	65	35	26	241	27	88	495

Of all ethnic groups in MATH 45 cohorts, African Americans complete transfer-level math courses at more than 3.8x higher rate than African Americans in MATH 40 cohorts; the highest among all ethnic groups. The overall rate for all MATH 45 students is 2.6x.



The number of students in the Math 45/45X preparation group is still relatively small as compared with the Math 40/840 preparation group. Further monitoring of these encouraging trends will be needed looking forward.

An in-depth research was done in 2014 by RP Group researchers (Craig Hayward and Terrence Willett) on acceleration path and curriculum redesign. This research, which is available on RP Group website, specifically focuses on remedial sequences of English and math leading to transfer-level courses at 16 California community colleges.