.XL, Math Jam, and MathPath Survival Report

Executive Summary

June 2010

Background

Program directors at Pasadena City College's Teaching and Learning Center (TLC) were interested in assessing the effects of their mathematic-based interventions, .XL, Math Jam and MathPath 1, on the successful completion of Intermediate Algebra, Math 131 the last course of the basic skills sequence (Math 402, 125 and 131). The directors were also interested in students' completion of the basic competencies for CSU and IGETC transfer as well as the basic competencies for AA/AS degrees. Of specific interest was whether students in the intervention groups, relative to mainstream PCC students, completed Math 131 at a higher and faster rate by the end of seven terms. Data was taken from the TLC database, a well-established resource and tool for tracking student success data. To answer the questions stated above, a series of survival analyses, Cox regressions, and chi-square tests were conducted.

Program Descriptions

- .XL is a summer bridge/first-year experience program for recent high school graduates who have placed into one of two basic skills cohorts: Level 1 math and Level 1 English or Level 1 math and Level 2 English. Students have guaranteed enrollment in math and English in the summer, fall, and spring semesters and access to tutors, a case manager, and the Teaching and Learning Center (TLC) computer lab. .XL students are predominantly young (18-20 years old), Latino, and first-generation college students. For this study, .XL n = 233
- Summer Math Jam is a two-week, no-credit program open to all new students who place into one of the three basic skills levels of math. Students study math, receive an orientation to college, and create relationships with math instructors and tutors. During the Fall Math Jam, students stay together with their summer jam teacher and tutor in a

credit math class. Like .XL and MathPath students, Math Jam students have access to TLC resources. Math Jam students are predominantly (64%) first-year students and young (45% are under 20 years of age and 70% are under 25). Math Jam students are more ethnically diverse than .XL students. For this study, the Math Jam n = 153.

- MathPath offers two, eight-week math courses in one semester. This study looked at students in MathPath 1 -- Beginning and Intermediate Algebra (Math 125 and 131). Each course has a supplemental Math Success course and an in-class tutor. Students have access to TLC resources, participate in a weekend camping trip, and are discouraged from taking any other courses. For this study, the MathPath n = 63

Evaluation Findings

Completion of Intermediate Algebra (Math 131):

- Compared to mainstream PCC students, students in both the .XL intervention ($\chi^2_{\text{Log-Rank}}$ = 10.385, p<.01) and the Math Jam intervention ($\chi^2_{\text{Log-Rank}}$ = 8.333, p<.01) completed Math 131 (Intermediate Algebra) at a higher proportion by the end of seven terms.
- Students in both the .XL and Math Jam interventions completed Math 131 at roughly the same proportion ($\chi^2_{\text{Log-Rank}}$ = 5.341, p=.021) by the end of seven terms. However, Math Jam students completed Math 131 at a faster rate.
- Students in the MathPath 1 intervention completed Math 131 at a higher proportion ($\chi^2_{\text{Log-Rank}}$ = 25.12, p<.001), and at a faster rate relative to the MathPath 1 comparison group by the end of seven terms.

Completion of Basic Competencies for CSU and IGETC Transfer and AAS/AA Degrees:

- Students in the .XL intervention completed these requirements at a higher proportion relative to students in Math Jam ($\chi^2_{\text{Log-Rank}}$ = 3.66, p = .056); however, the Math Jam students completed these requirements at a faster rate.
- MathPath 1 students completed the basic competencies at a higher proportion relative to the MathPath 1 comparison group ($\chi^2_{\text{Log-Rank}}$ = 9.36, p <.01).

Conclusions

Overall, these findings suggest that the .XL and Math Jam interventions are performing equally well in getting students through the basic math sequence, with Math Jam students getting through the sequence faster.

- The .XL intervention outperformed the Math Jam intervention in completion of basic competencies for CSU and IGETC transfer, and the basic competencies for AA/AS degrees; however, students in Math Jam who completed the basic competencies completed them at a faster rate than .XL students.
- MathPath 1 students outperformed MathPath 1 comparison group students in completion of both Math 131 and basic competencies for CSU and IGETC transfer, and basic competencies AA/AS.
- The .XL program, a six-week intervention, is more time and labor intensive than the Math Jam program, a two-week intervention. Given that these results indicate that .XL and Math Jam performed equally well in getting students through PCC's basic skills math sequence, (completion of Math 131), perhaps an expansion of the Math Jam program and a reduction of the .XL program should be considered. Expansion of the Math Jam program can potentially service a larger number of students without having to exponentially increase staff and/or teacher services or any other resources necessary to run the intervention. On the other hand, by reducing the .XL program, program directors can be more selective as to who enters the intervention, perhaps targeting students who score the lowest on the math placement tests.