

AB 705 Research

Math Throughput Rates by High School GPA

Background Information

AB 705 Requirements

- Use of high school performance data
- Use of highly unlikely standard
- Maximize students' probability of completing transfer-level math and English within one year
- Maximize students' probability of completing transfer-level English through the ESL sequence within three years.

AB 705 and MMAP

- AB 705 can be thought of as an adaptation of MMAP.
- MMAP was based on identifying students who were highly likely to succeed in transfer-level math or English.
- AB 705 states that students can only be assigned to remediation if they are highly unlikely to succeed in transfer-level math or English AND that remediation maximizes their probability of throughput.

Throughput Rates

- According to AB 705, a throughput rate refers to the proportion of students who complete transfer-level math or English within two primary semesters of entering their first course in the sequence.

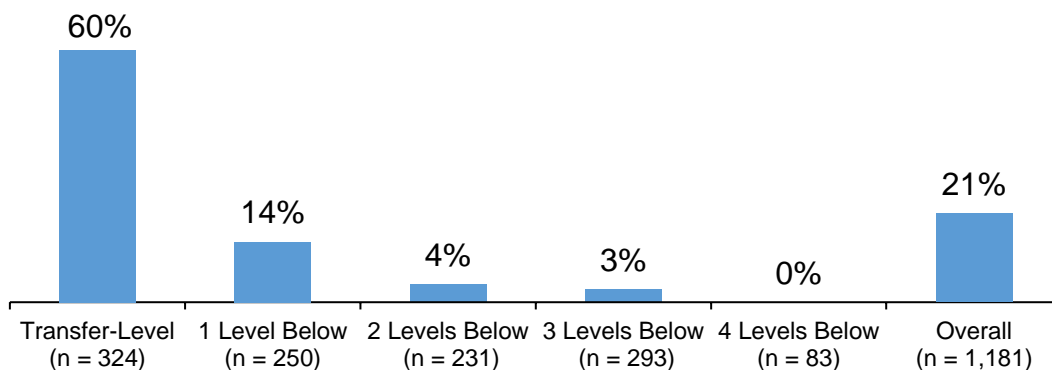
Research Design and Results

In an effort to replicate statewide results, these analyses summarize the one-year throughput rates for math by examining students' first math course attempted and high school GPA using five fall cohorts.

Throughput Rates by First Math Course Attempted

There were 1,181 students who first attempted a math course in the past five fall terms (fall 2013 - fall 2017) and had their 11th grade GPA available in CalPASS-Plus. The overall one-year throughput rate for these students was 21%, and as we have seen in previous reports, the throughput rates were higher for students who started in the higher level math courses (see Figure 1).

Figure 1. One-year throughput rates by first math course attempted



High School Performance Criteria

AB 705 legislation outlines the high school performance criteria used to group students for both a statistics/liberal arts pathway and a BSTEM pathway. The tables below summarize these criteria and the percent of our students that fall within each category (see Tables 1 and 2).

Table 1. High school performance criteria for statistics/liberal arts pathway

| High School Performance | Students (n = 1,181) |
|-------------------------|-------------------------|
| HS GPA \geq 3.0 | 24% (n = 283) |
| HS GPA from 2.3 to 2.9 | 46% (n = 541) |
| HS GPA $<$ 2.3 | 30% (n = 357) |

Table 2. High school performance criteria for BSTEM pathway

| High School Performance | Students (n = 1,181) |
|--|-------------------------|
| HS GPA \geq 3.4 or HS GPA \geq 2.6 and Enrolled in HS Calculus | 8% (n = 98) |
| HS GPA \geq 2.6 or Enrolled in HS Precalculus | 45% (n = 533) |
| HS GPA \leq 2.6 and no HS Precalculus | 47% (n = 550) |

Throughput Rates by First Math Course Attempted and High School Performance

Using the high school performance criteria outlined in Tables 1 and 2, we examined one-year throughput rates by first math course attempted. The results indicated that regardless of high school performance, students who started higher in the math sequence had higher one-year throughput rates than students who started lower in the math sequence (see Tables 3 and 4). In fact, the benefit of starting the math sequence at transfer-level rather than even just one level below transfer was evident across all groups, including the groups with the lowest high school performance.

Table 3. One year throughput rates by first math class attempted and high school performance for the statistics/liberal arts pathway

| | HS GPA < 2.3 | | HS GPA 2.3 to 2.9 | | HS GPA >= 3.0 | | Overall | |
|----------------|--------------|------------|-------------------|------------|---------------|------------|--------------|------------|
| | N | 1 Year TPR | N | 1 Year TPR | N | 1 Year TPR | N | 1 Year TPR |
| Transfer-Level | 46 | 44% | 135 | 52% | 143 | 73% | 324 | 60% |
| 1 Level Below | 56 | 7% | 123 | 13% | 71 | 23% | 250 | 14% |
| 2 Levels Below | 82 | 4% | 117 | 6% | 32 | 0% | 231 | 4% |
| 3 Levels Below | 135 | 0% | 124 | 4% | 34 | 12% | 293 | 3% |
| 4 Levels Below | 38 | 0% | 42 | 0% | 3 | 0% | 83 | 0% |
| Total | 357 | 8% | 541 | 18% | 283 | 44% | 1,181 | 21% |

Note. TPR stands for throughput rate.

Table 4. One year throughput rates by first math class attempted and high school performance for the BSTEM pathway

| | HS GPA <= 2.6 and No Precalc | | HS GPA >= 2.6 or Enrolled in Precalc | | HS GPA >= 3.4 or HS GPA >= 2.6 and Enrolled in Calc | | Overall | |
|----------------|------------------------------|------------|--------------------------------------|------------|---|------------|--------------|------------|
| | N | 1 Year TPR | N | 1 Year TPR | N | 1 Year TPR | N | 1 Year TPR |
| Transfer-Level | 70 | 47% | 186 | 58% | 68 | 79% | 324 | 60% |
| 1 Level Below | 97 | 10% | 139 | 16% | 14 | 29% | 250 | 14% |
| 2 Levels Below | 133 | 2% | 90 | 9% | 8 | 0% | 231 | 4% |
| 3 Levels Below | 194 | 1% | 93 | 8% | 6 | 17% | 293 | 3% |
| 4 Levels Below | 56 | 0% | 25 | 0% | 2 | 0% | 83 | 0% |
| Total | 550 | 8% | 533 | 27% | 98 | 60% | 1,181 | 21% |

Note. TPR stands for throughput rate.

Statewide Math Throughput Rate Results and Comparison

Statewide findings focus on one-year math throughput rates by high school GPA among students who start at transfer-level. As can be seen in Figure 2 and 3, the results from Cypress College closely replicate the results demonstrated in the statewide data for both the statistics/liberal arts model and the BSTEM model.

Figure 2. Throughput Rates for Transfer-Level in the Statistics/Liberal Arts Model

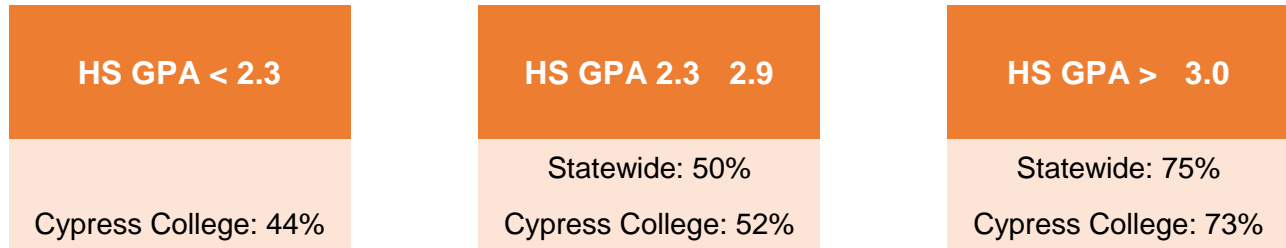
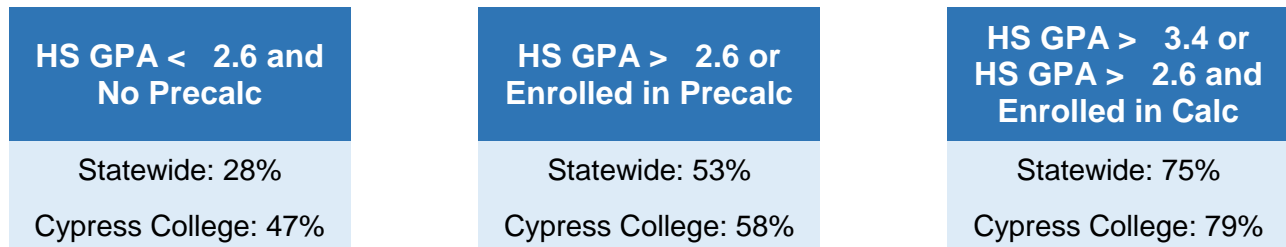


Figure 3. Throughput Rates for Transfer-Level in the BSTEM Model



Summary of Findings

- Compliance with AB 705 requires colleges to provide evidence demonstrating that students are more likely to complete a transfer-level course within one year by being placed in the developmental course.
- Evidence to date indicates that regardless of high school performance, students are more likely to complete transfer-level math within one year if they are placed in transfer-level directly rather than placed in a developmental course.

AB705 Placement and Support Recommendations for Statistics/Liberal Arts Math

| High School Performance | AB 705 Compliant Placement |
|-------------------------|--|
| HS GPA ≥ 3.0 | Transfer-Level Statistics/Liberal Arts Math No additional academic or concurrent support required |
| HS GPA 2.3 to 2.9 | Transfer-Level Statistics/Liberal Arts Math Additional academic or concurrent support recommended |
| HS GPA < 2.3 | Transfer-Level Statistics/Liberal Arts Math Additional academic or concurrent support strongly recommended |

AB705 Placement and Support Recommendations for BSTEM Math

| High School Performance | AB 705 Compliant Placement |
|--|--|
| HS GPA ≥ 3.4 or HS GPA ≥ 2.6 and Enrolled in HS Calculus | Transfer-Level BSTEM Math No additional academic or concurrent support required |
| HS GPA ≥ 2.6 or Enrolled in HS Precalculus | Transfer-Level BSTEM Math Additional academic or concurrent support recommended |
| HS GPA ≤ 2.6 and No HS Precalculus | Transfer-Level BSTEM Math Additional academic or concurrent support strongly recommended |