A rising tide lifts all ships, or does it? A look at early AB705 outcomes.

Craig Hayward, Bakersfield College + The RP Group
John Hetts, Educational Results Partnership + CalPASS Plus
Mallory Newell, De Anza College + The RP Group
Terrence Willett, Cabrillo College + The RP Group
Overview

- Overview of default placement rule methodology
- Disaggregating the results
- Results from early adopters of AB 705
- Compressed developmental courses
- Non Credit ESL
- Credit ESL

bit.ly/MMAP2019
Overview of AB 705
default placement rule methodology
What maximizes completion of transfer-level English and Math?

• Can we identify any students more likely to complete transfer-level English or Math if they start in developmental education?
  —Let’s look at the students least likely to succeed based on their HS performance
Precalculus Decision Tree

Pre-Calculus Throughput Rates

AB 705 Analysis of Groups of Students in Precalculus

11th grade GPA < 2.6 and no Precalculus in HS
- 38% pass rate
- ~16% of students

11th grade GPA < 2.6 with Precalculus in HS
- 49% pass rate
- ~5% of students

11th grade GPA >= 2.6 and < 3.1
- 56% pass rate
- ~36% of students

11th grade GPA >= 3.1 and < 3.4
- 67% pass rate
- ~21% of students

11th grade GPA >= 3.4
- 78% pass rate
- ~23% of students
Maximizing Throughput: Pre-Calculus

One-year BSTEM throughput rate by placement level for students with less than a 2.6 high school GPA and no HS precalculus

- 11th grade GPA < 2.6 and no Precalc. in HS
  - 38% pass rate
  - ~16% of students

- Transfer-level: 38%
- One-level below: 14%
- Two-levels below: 1%
- Three-levels below: 0%
- Four-levels below: 0%
Adjusting Projected Success Rates

- Difference in GPA and placement test score can be accounted for statistically and the projected success rates of similar students but from lower placement levels can be adjusted (lowered)

- Magnitude of the adjustment depends on:
  - extent of differences in test scores and GPA between those in the MMAP models and those who would potentially be entering, and;
  - strength of the association between the test scores/GPA and success in the target class
Additional considerations for completion of transfer-level math starting from one-level below

• Not all students goals require transfer-level math
• Need to take into account that different majors/pathways lead to different possible math
• Need to account for different curricular entry points after intermediate algebra into transfer-level math curriculum —College algebra, trigonometry, pre-calculus
SLAM vs. BSTEM Courses

- SLAM
  - Statistics
  - Finite Math
  - Quantitative Reasoning
  - Math for non-Math Majors
  - Math for Teachers (and other “Math for…” type classes)
  - Other variants of what is often termed liberal arts math

- BSTEM
  - College Algebra
  - Precalculus
  - Trigonometry
  - Business Calculus
  - Calculus and higher level math
Transfer-Level Course Completion in One Year from First Class in Discipline (error bars represent ±1 se)

- **Transfer-Level English**: Lowest Node $N=7,248$, Regression $N=1,749$, 1 level below $N=13,241$.
- **Statistics**: Lowest Node $N=1,485$, Regression $N=809$, 1 level below $N=11,309$.
- **Pre-Calculus**: Lowest Node $N=1,753$, Regression $N=661$, 1 level below $N=18,917$. 

Success rates:
- Transfer-Level English: 43% lowest node, 43% regression, 12% 1 level below.
- Statistics: 40% lowest node, 29% regression, 8% 1 level below.
- Pre-Calculus: 38% lowest node, 28% regression, 13% 1 level below.
No one is saying that these success rates are acceptable

• However, AB705 requires that we only place students into developmental education if:
  − students are highly unlikely to succeed at transfer-level
  − it maximizes their likelihood of completion of the transfer-level course
• Neither of these conditions appear to be met even for the lowest performing HS students
• That limits us to providing concurrent or corequisite support
Technical Details of Adjustment Process

• Use multivariate regression to predict success rate in target transfer-level using GPA and test scores
• Calculate mean high school GPA and test scores for lowest node students in each level/type of first attempted course
• Use regression model to predict success in the target course using means in step 2.
• Rescale regression predicted success rates against the lowest node predicted success rates to create comparability between decision-tree and regression-based predictions
• Calculate overall success rate estimate by weighting estimates from each level/type weighted by number of students beginning at each level
• Use standard error of prediction from the regression model at each level to create lower and upper error bounds for estimates also weighted as in step 5.

Disaggregations

**Reports**
Gender and Ethnicity: [bit.ly/AB705Equity1](bit.ly/AB705Equity1)
EOPS & DSPS: [bit.ly/AB705Equity2](bit.ly/AB705Equity2)

**Webinar**
Slides: [bit.ly/AB705Disaggregation](bit.ly/AB705Disaggregation)
Recording: [bit.ly/AB705DisaggregationRecording](bit.ly/AB705DisaggregationRecording)
# Detailed English Comparisons by HSGPA Level by Ethnicity

## Success rates if placed directly

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>HS GPA&lt;1.9</th>
<th>HS GPA≥1.9 &amp; &lt;2.6</th>
<th>HS GPA≥2.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate N</td>
<td>Rate N</td>
<td>Rate N</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>48% 347</td>
<td>66% 1,654</td>
<td>85% 5,855</td>
</tr>
<tr>
<td>African American</td>
<td>34% 488</td>
<td>52% 1,183</td>
<td>71% 1,319</td>
</tr>
<tr>
<td>Filipino</td>
<td>45% 131</td>
<td>62% 540</td>
<td>83% 1,751</td>
</tr>
<tr>
<td>Hispanic</td>
<td>41% 3,424</td>
<td>56% 9,094</td>
<td>76% 15,091</td>
</tr>
<tr>
<td>Native American</td>
<td>25% 55</td>
<td>53% 164</td>
<td>76% 214</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>37% 52</td>
<td>53% 129</td>
<td>72% 233</td>
</tr>
<tr>
<td>Two or more races</td>
<td>40% 164</td>
<td>56% 616</td>
<td>79% 1,374</td>
</tr>
<tr>
<td>White</td>
<td>46% 1,929</td>
<td>61% 8,507</td>
<td>82% 21,671</td>
</tr>
<tr>
<td>Unknown</td>
<td>42% 658</td>
<td>60% 2,048</td>
<td>80% 4,532</td>
</tr>
</tbody>
</table>

## Successful completion of transfer-level if start one-level below

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>HS GPA&lt;1.9</th>
<th>HS GPA≥1.9 &amp; &lt;2.6</th>
<th>HS GPA≥2.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate N</td>
<td>Rate N</td>
<td>Rate N</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>27% 566</td>
<td>37% 1,940</td>
<td>39% 4,253</td>
</tr>
<tr>
<td>African American</td>
<td>12% 1,124</td>
<td>24% 1,752</td>
<td>36% 1,131</td>
</tr>
<tr>
<td>Filipino</td>
<td>21% 231</td>
<td>37% 670</td>
<td>48% 1,230</td>
</tr>
<tr>
<td>Hispanic</td>
<td>15% 7,439</td>
<td>28% 14,009</td>
<td>42% 12,326</td>
</tr>
<tr>
<td>Native American</td>
<td>18% 81</td>
<td>23% 143</td>
<td>45% 148</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>8% 71</td>
<td>26% 186</td>
<td>41% 188</td>
</tr>
<tr>
<td>Two or more races</td>
<td>16% 257</td>
<td>28% 636</td>
<td>43% 659</td>
</tr>
<tr>
<td>White</td>
<td>20% 2,348</td>
<td>31% 7,462</td>
<td>50% 9,434</td>
</tr>
<tr>
<td>Unknown</td>
<td>18% 1,057</td>
<td>30% 2,253</td>
<td>47% 2,423</td>
</tr>
</tbody>
</table>
English throughput rate advantage by ethnicity

Difference between completion of gateway transfer-level course in one year if directly placed in transfer-level vs. starting one-level below
English throughput rate advantage by gender

Difference between completion of gateway transfer-level course in one year if directly placed in transfer-level vs. starting one-level below
English throughput rate advantage by other equity categories

Difference between completion of gateway transfer-level course in one year if directly placed in transfer-level vs. starting one-level below
Difference between completion of gateway transfer-level course in one year if directly placed in transfer-level vs. starting one-level below.
Statistics throughput rate advantage by gender

Difference between completion of gateway transfer-level course in one year if directly placed in transfer-level vs. starting one-level below
Statistics throughput rate advantage by other equity categories

Difference between completion of gateway transfer-level course in one year if directly placed in transfer-level vs. starting one-level below
What did disaggregation of the basic analysis show?

• There were no identifiable groups of students within timeframe of study who completed a transfer-level course at higher ratea when placed in developmental education than directly in transfer-level.

  – This patterns holds by ethnicity, gender, EOPS and DSPS status, ELL status in high school, and Pell-eligible students as well

  – Evidence that some programs serving students below transfer-level were effective at improving throughput but not above direct placement
Similar statewide findings from TN & GA

Sources:
NASEM Developmental Math Presentation by Dr. Tristan Denley, Executive Vice Chancellor for Academic Affairs and Chief Academic Officer, University System of Georgia: bit.ly/DenleyNASEM
Completion of Gateway Math by ACT Sub-score
Community College Pre-requisite Model vs. Co-requisite Model

Pre-requisite Model AY 2012-13
Co-requisite Model AY 2015-16

<table>
<thead>
<tr>
<th>ACT Math Sub-score</th>
<th>Pre-requisite</th>
<th>Co-requisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;14</td>
<td>2.7%</td>
<td>13.1%</td>
</tr>
<tr>
<td>14</td>
<td>3.8%</td>
<td>49%</td>
</tr>
<tr>
<td>15</td>
<td>6.8%</td>
<td>12.3%</td>
</tr>
<tr>
<td>16</td>
<td>11.5%</td>
<td>11.5%</td>
</tr>
<tr>
<td>17</td>
<td>19.7%</td>
<td>25.6%</td>
</tr>
<tr>
<td>18</td>
<td>63%</td>
<td>70%</td>
</tr>
<tr>
<td>No ACT</td>
<td>46%</td>
<td>55%</td>
</tr>
<tr>
<td>Total</td>
<td>33%</td>
<td>55%</td>
</tr>
</tbody>
</table>
USG System-wide Comparison of Success in Gateway Math Classes

- 2013 Traditional DevEd
- 2015-17 Foundations
- 2015-17 Corequisite
USG System-wide Comparison of Success in Gateway Math Classes

Pell Students

ACT Math Sub-score

2013 Traditional DevEd
2015 Foundations
2015 Corequisite

<table>
<thead>
<tr>
<th>Score</th>
<th>2013 Traditional DevEd</th>
<th>2015 Foundations</th>
<th>2015 Corequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;14</td>
<td>11%</td>
<td>9%</td>
<td>14%</td>
</tr>
<tr>
<td>14</td>
<td>19%</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td>15</td>
<td>21%</td>
<td>26%</td>
<td>28%</td>
</tr>
<tr>
<td>16</td>
<td>32%</td>
<td>30%</td>
<td>32%</td>
</tr>
<tr>
<td>17</td>
<td>35%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>18</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>19</td>
<td>34%</td>
<td>46%</td>
<td>46%</td>
</tr>
<tr>
<td>20</td>
<td>36%</td>
<td>38%</td>
<td>38%</td>
</tr>
<tr>
<td>21</td>
<td>20%</td>
<td>33%</td>
<td>33%</td>
</tr>
<tr>
<td>Total</td>
<td>66%</td>
<td>20%</td>
<td>31%</td>
</tr>
</tbody>
</table>
USG System-wide Comparison of Success in Gateway Math Classes

African American Students

[Bar chart showing success rates for African American students in Gateway Math classes across the University System of Georgia, with success rates ranging from 0% to 80%.]
Results from Early Adopters
Pretransfer math includes 3 levels below transfer tracked for three terms, fall 2016 to spring 2017. Fall 2018 statistics became open enrollment with no coreq, represents one-term success rates.
English – Throughput vs. Fall 2018

Pretransfer English and Reading includes 2 levels below transfer for each course tracked for three terms, fall 2016 to spring 2017. Fall 2018 reading was integrated into English and open to > 2.6 HSGPA with no coreq, represents one term success rate.
ENGL1A Success Rate and Volume of Successful Completions
Fall 2017 vs. Fall 2018

The overall success rate increased by 1% and total successful completions increased by 218 total students. < 2.6 HSGPA eligible in fall 2018
The overall success rate remained the same and the total successful completions increased by 398 total students. Open access to statistics in fall 2018.
Statistics: # of Successful Completions
Fall 2017 vs. Fall 2018

Open enrollment in Fall 2018, with tutors added to some sections. Overall success rate declined from 71% to 62%, but the number of successful completions increased.
Open enrollment into sections offered with a corequisite in Fall 2018. Overall success rate declined from 63% to 60%, but the number of successful completions increased.
While the overall success rate for Statistics decreased, total completions increased by 312 students. Open access to statistics in fall 2018. Success in 1st calculus course increased 18% and by 133 total students. Default placement rules.
The overall success rate for English1A + corequisite remained the same but the stand alone English1A decreased 1%, total completions increased by 633 students. Default placement rules.
Initial Math & English Level: Of students beginning the Math or English sequence at CR, what percent began in a transfer-level course?

**ENGLISH**
- 2013F: 39% Transfer-Level, 40% One Level Below Transfer-Level, 25% Two or More Levels Below Transfer-Level
- 2014F: 39% Transfer-Level, 40% One Level Below Transfer-Level, 20% Two or More Levels Below Transfer-Level
- 2015F: 38% Transfer-Level, 43% One Level Below Transfer-Level, 13% Two or More Levels Below Transfer-Level
- 2016F: 43% Transfer-Level, 40% One Level Below Transfer-Level, 4% Two or More Levels Below Transfer-Level
- 2017F: 53% Transfer-Level, 57% One Level Below Transfer-Level
- 2018F: 57% Transfer-Level, 77% One Level Below Transfer-Level

**MATH**
- 2013F: 26% Transfer-Level, 35% One Level Below Transfer-Level, 61% Two or More Levels Below Transfer-Level
- 2014F: 13% Transfer-Level, 35% One Level Below Transfer-Level, 21% Two or More Levels Below Transfer-Level
- 2015F: 13% Transfer-Level, 35% One Level Below Transfer-Level, 21% Two or More Levels Below Transfer-Level
- 2016F: 34% Transfer-Level, 34% One Level Below Transfer-Level, 36% Two or More Levels Below Transfer-Level
- 2017F: 33% Transfer-Level, 34% One Level Below Transfer-Level, 37% Two or More Levels Below Transfer-Level
- 2018F: 59% Transfer-Level, 24% One Level Below Transfer-Level, 21% Two or More Levels Below Transfer-Level
One-Year Throughput Rate: Of the students who began the Math or English sequence one level below transfer, what percent successfully completed a transfer-level course within one year?

**ENGLISH**
- 2013F: 30%
- 2014F: 29%
- Average: 29%
- 2015F: 27%
- 2016F: 28%

**MATH**
- 2013F: 25%
- 2014F: 20%
- 2015F: 25%
- Average: 24%
- 2016F: 21%
- 2017F: 32%

English courses: ENGL-102, and ENGL-150.
Math courses: MATH-102, MATH-120, and MATH-194...
Transfer-Level Enrollment & Success: *How many transfer-level enrollments result in success?*

**Transfer-Level English**

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
<th>Successful</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2013</td>
<td>220</td>
<td>145</td>
<td>66%</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>259</td>
<td>172</td>
<td>66%</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>288</td>
<td>207</td>
<td>72%</td>
</tr>
<tr>
<td>Fall 2016</td>
<td>281</td>
<td>177</td>
<td>63%</td>
</tr>
<tr>
<td>Fall 2017</td>
<td>339</td>
<td>214</td>
<td>63%</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>426</td>
<td>274</td>
<td>64%</td>
</tr>
</tbody>
</table>

**Transfer-Level Math**

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
<th>Successful</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2013</td>
<td>179</td>
<td>127</td>
<td>71%</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>195</td>
<td>132</td>
<td>68%</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>190</td>
<td>126</td>
<td>66%</td>
</tr>
<tr>
<td>Fall 2016</td>
<td>195</td>
<td>104</td>
<td>53%</td>
</tr>
<tr>
<td>Fall 2017</td>
<td>185</td>
<td>107</td>
<td>58%</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>352</td>
<td>206</td>
<td>59%</td>
</tr>
</tbody>
</table>
First-Time Enrollment in Transfer-Level Courses

Math

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall15</th>
<th>Fall16</th>
<th>Fall17</th>
<th>Fall18</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18%</td>
<td>19%</td>
<td>24%</td>
<td>56%</td>
</tr>
</tbody>
</table>

English

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall15</th>
<th>Fall16</th>
<th>Fall17</th>
<th>Fall18</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50%</td>
<td>51%</td>
<td>53%</td>
<td>100%</td>
</tr>
</tbody>
</table>
One-Year Completion Rate in Transfer-Level Courses

![Graph showing completion rates in Transfer Level Math and Transfer Level English from Fall 15-Spring 16 to Fall 18-Spring 19. The completion rates for Transfer Level Math are as follows:

- Fall 15-Spring 16: 19%
- Fall 16-Spring 17: 23%
- Fall 17-Spring 18: 28%
- Fall 18-Spring 19: 32%

The completion rates for Transfer Level English are as follows:

- Fall 15-Spring 16: 49%
- Fall 16-Spring 17: 55%
- Fall 17-Spring 18: 54%
- Fall 18-Spring 19: 65%

Fall 18 actual completion rates for both Transfer Level Math and Transfer Level English are 65%.]
ESL Findings
A review of the literature found the following types of assessments to be most widely used for ELL students:

- **Assessments Using Writing Samples and Essays**
  - A writing sample or essay jointly reviewed with high school data is a better measure of success than a multiple choice test.
  - Notes the high cost, high resources needs.

- **Guided Self-Placement**
  - It enables colleges to give students a voice in their placement and results in a valid placement.
  - GSP has been found to be a valid measure of assessment for ELL students and results in higher levels of success than other measures of assessment.
ESL Literature Review

A review of the literature found the following types of assessments to be most widely used for ELL students:

- Multiple Measures Questionnaires
  - multiple measures and conversations with counselors were recommended to be a part of an informed placement process
  - Irvine Valley College found the following questions to be most potent:
    - Age started learning English; Used a translation sheet; Frequency of reading a book in English; Self-Placement via rubric
- Test of English Foreign Language (TOEFL)
  - TOEFL scores were found to have a low correlation with academic achievement

Non Credit ESL
Non-credit, Adult Ed ESL Programs

- 13,347 in the ESL longitudinal throughput sample
- Less likely to start in an ESL class with a meaningful CB21 code (aka, “real ESL level”) – 72% vs. 88%
- More likely to be seasonal ag. Workers (5% vs. 3%)
- Not much older than credit students (19 vs. 18.6 yrs.)
- Less likely to be from an Asian language group than are credit students (11% vs. 23%)
Noncredit ESL Students in the Sequence

- Begin ESL at a lower level – 4.9 vs. 2.7 levels below
- Start English at about the same level 1.2 vs. 1.1 lvls. bel.
- However, much less likely to ever take a credit English Writing class than are credit ESL students (35% vs. 62%)
- Uncollected Ed Goal is higher (33% vs. 29%)
- Of those with valid Ed Goals, less likely to have an Ed Goal of Degree or Transfer (22% vs. 48%)
Average Starting Level in Noncredit ESL

N = 285,159
TLE Throughput within Three Years by Starting Noncredit ESL Level

-8: 0.1%
-7: 0.2%
-6: 0.4%
-5: 0.6%
-4: 1.4%
-3: 2.9%
-2: 4.4%
-1: 3.6%
Credit ESL Findings

- High school ELL designation or ELD course history AND taking community college ESL (included in MMAP ESL analysis)
- High school ELL designation or ELD course history but NOT taking community college ESL (included in MMAP English analysis)
- Non-native speakers with no high school information available AND taking community college ESL (included in latest MMAP file)
- Non-native speakers with no high school information available and NOT taking community college ESL (included in latest MMAP file)
Average Starting Level in ESL

ESL Students Starting ESL Level

-8: 2%
-7: 3%
-6: 7%
-5: 10%
-4: 16%
-3: 21%
-2: 18%
-1: 22%
0: 1%
Higher Average ESL Starting Level Correlates with Higher TLE Throughput
TLE Throughput within Three Years by Starting ESL Level

TLE Throughput in 3

-8  1.9%
-7  3.0%
-6  4.8%
-5  5.3%
-4  17.2%
-3  18.6%
-2  25.7%
-1  34.5%
Further Research Questions

- What placement maximizes TLE throughput for ESL students within three years?
- Which students should be directed to TLE and which to ESL coursework?
- Which students should be directed to noncredit vs. credit ESL?
- What is an effective Guided Self-Placement process?
Questions?

Upcoming Events:

NAVIGATING AND NETWORKING THROUGH AB 705 IMPLEMENTATION: WE’RE ALL IN THIS TOGETHER

The MMAP Research Team in collaboration with the Chancellor’s Office for California Community Colleges, The RP Group, and Educational Results Partnership would like to invite up to 8 members from your AB 705 implementation team to join us for a half-day of discussion, learning and networking regarding the various ways colleges are implementing AB 705 requirements. The event will bring together colleges within your region at this in-person convening to share their experiences, challenges and opportunities. A CCCCO representative, as well as members of the MMAP Team will be available to address questions. Lunch will be provided.

APRIL 12 | DE ANZA COLLEGE
10 a.m. - 3 p.m.

APRIL 19 | IRVINE VALLEY COLLEGE (Full)
10 a.m. - 3 p.m.

APRIL 26 | SIERRA COLLEGE
10 a.m. - 3 p.m.

MAY 3 | SAN DIEGO MESA COLLEGE
9 a.m. - 2 p.m.

RSVP: https://bit.ly/2T7ZXGO