Let Icarus Fly

Multiple Measures in Assessment and the Reimagination of Student Capacity

California State University Graduation Initiative 2025 Symposium

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EDUCATIONAL RESULTS PARTNERSHIP

Daedalus and Icarus

- Daedalus crafted the labyrinth of inescapable complexity for King Minos
  - Helped Thesus escape & was imprisoned in tower with son Icarus
- To escape, Daedalus built wings of feathers & wax
- Warning: Don't fly too high, lest sun melt the wax and you plummet to your doom
  - Dangers of innovation/invention, hubris,
  - Importance of knowing your limits, listening to your wiser elders
- But most of us forget the rest of that story…

Three snapshots of backed up, leaky educational pipeline

- 38% of CSU students placed into coursework already completed (Avg HSGPA = 3.2)
  - 50% of African American, 37% of Hispanic/Latino, 34% of female students
  - bit.ly/CSUProficiency

- 75% (CCCCO Scorecard) to 85% (2011 CCCCO BSI Accountability Report: bit.ly/BSI2012) of students in placed into ≥1 developmental education courses
  - African American and Hispanic students disproportionately likely (3-4X) to be placed 3-4 levels below (pre-algebra or arithmetic) in mathematics

- Noyce Foundation (bit.ly/Noyce2010)
  - ~2/3 of students who take Algebra in 8th grade, repeat Algebra (or lower) in 9th grade
  - Half of students with a B or better or who meet or exceed Algebra standards repeat Algebra or lower (and are no more successful in second attempt)

What do these have in common?

- As students move *between* segments (compared to when they move within segments)
  - Disproportionately likely to repeat, go backwards
    - Even after success!
  - Standardized tests frequent gatekeeper/proxy
  - Repetition yields _at best_ moderate improvement in performance in repeated and subsequent course
  - Disproportionate impact on underrepresented populations
  - Substantial real and opportunity costs to repeat courses successfully completed

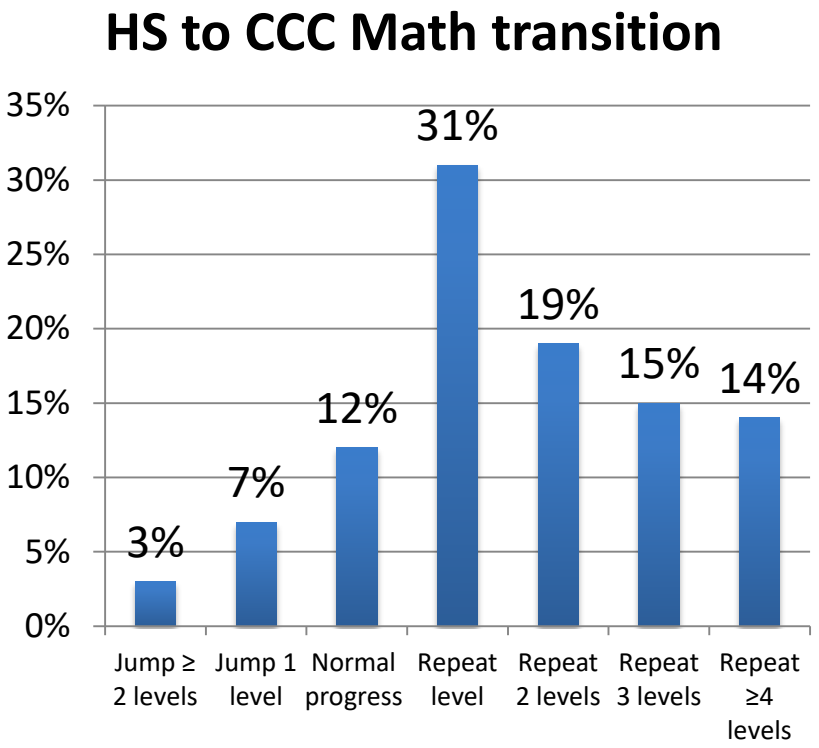
Possible explanations

- Students struggle to develop math and English competencies
- Collectively, we struggle to teach math and English competencies

- Transitions and mistrust
- Methods of assessment of readiness are flawed/incomplete
- Repetition of level is ineffective (and costly)
  - Especially for students that successfully completed

Transitions and intersegmental trust

- Within systems: highly reliable progression after successful completion
- HS to CSU
  - 38% repeat previously completed coursework, ~60% African Americans, 45% of Hispanics
- HS to CCC transition
  - ~3/4 repeat ≥ 1 level, ~1/2 repeat ≥ 2 levels of math
  - African Americans & Hispanics ~60% more likely, Female students ~20% more likely
- Noyce Foundation report
  - Algebra in 8th grade, ~2/3 repeat including 50% of students with B or better
  - Algebra in 7th grade advance to Geometry in 8th grade

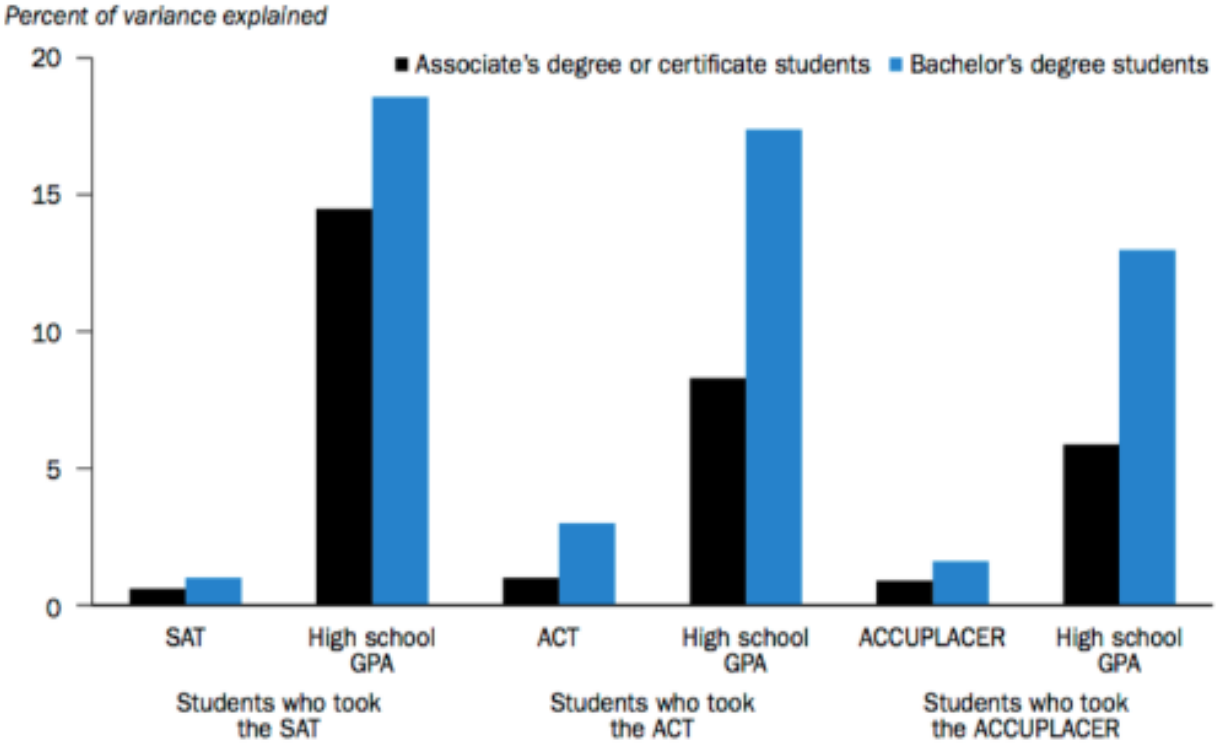


Transitions and the incomplete standardized proxy

- Standardized tests are held out as a way for us to know the “truth” about student preparation/readiness
  - “Can’t possibly know what’s going on behind the intersegmental veil”

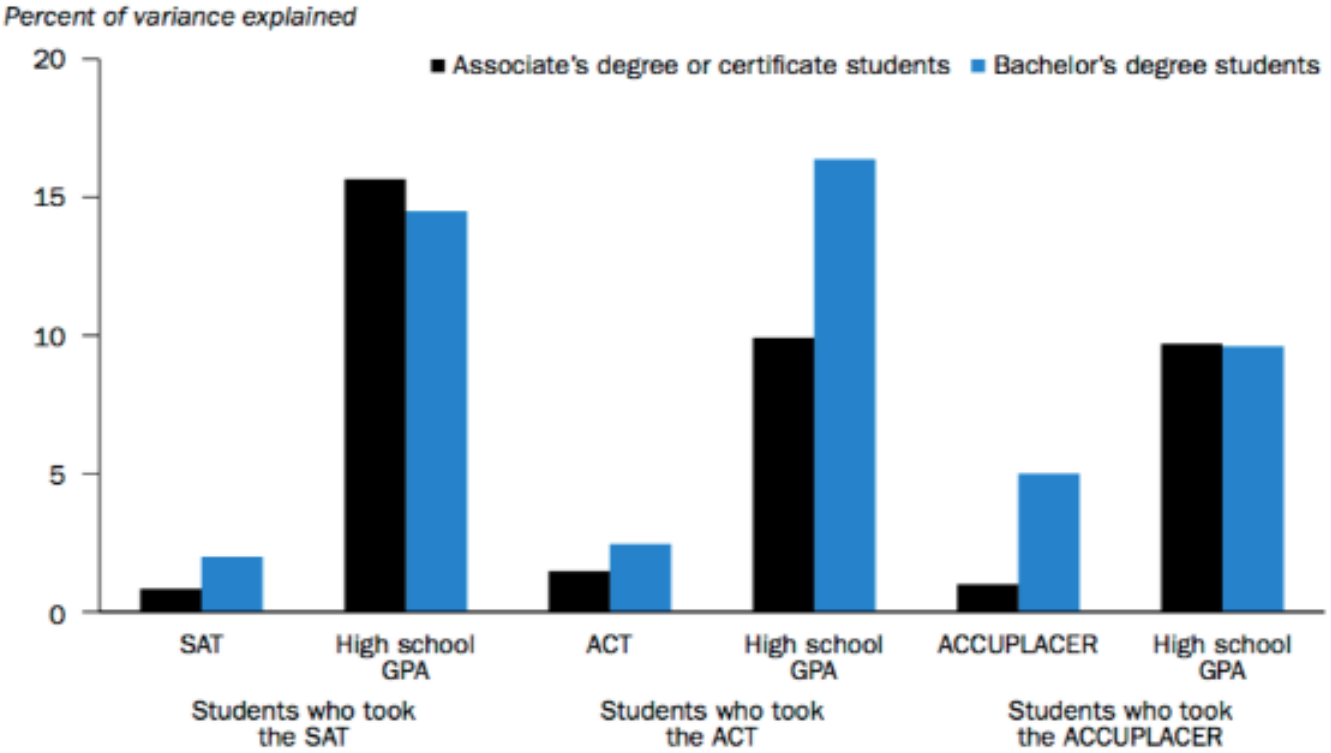
- Regularly lead to vastly different intersegmental rates of progression
  - Why?
  - One key reason – single instance, single method standardized tests typically weak predictor of subsequent performance

Figure 6. Among University of Alaska students who enrolled directly in college English courses, high school grade point average explained more of the variation in college English grades than did exam scores, 2008/09–2011/12



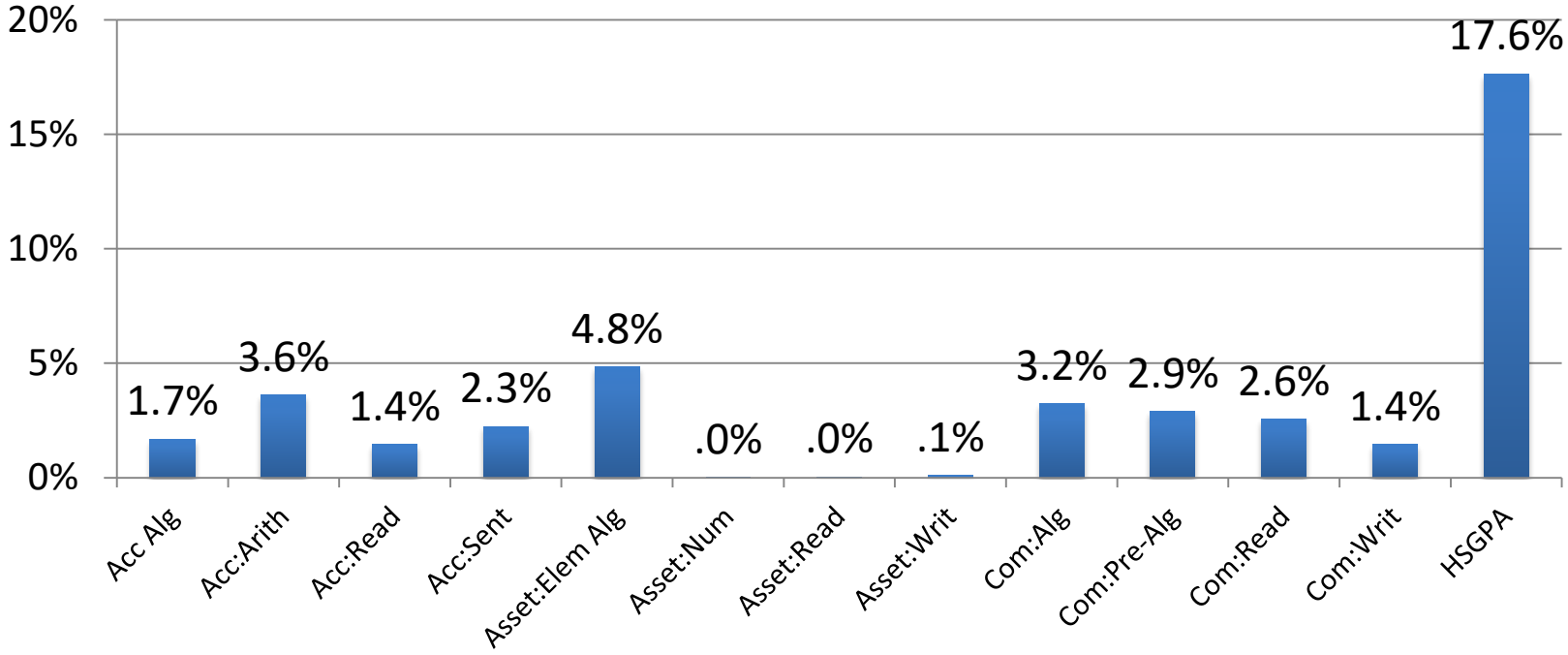
From Hodara, M., & Cox, M. (2016), **Developmental education and college readiness at the University of Alaska**: http://bit.ly/HSGPAAK

Figure 7. Among University of Alaska students who enrolled directly in college math courses, high school grade point average explained more of the variation in college math grades than did exam scores, 2008/09–2011/12



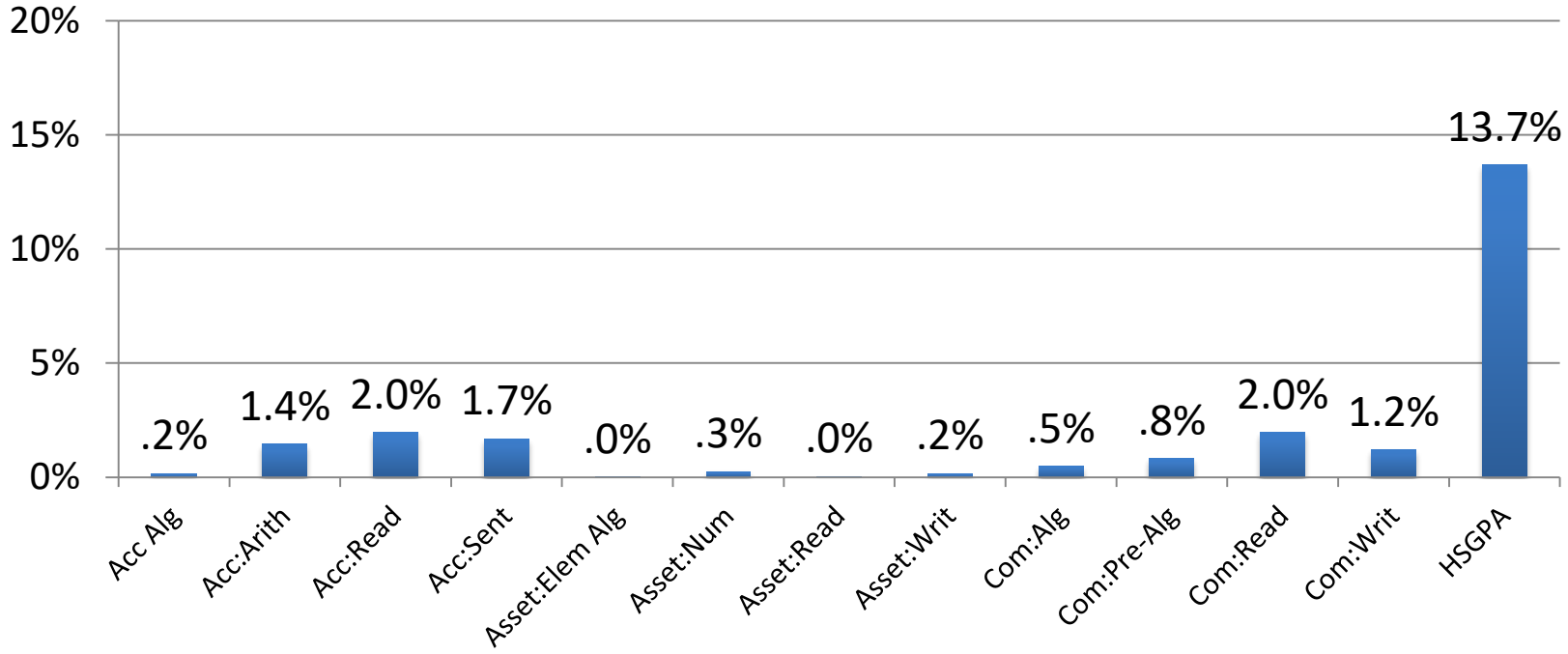
From Hodara, M., & Cox, M. (2016), **Developmental education and college readiness at the University of Alaska**: http://bit.ly/HSGPAAK

Variance in college level Math grades explained by various assessments - NC



Adapted from Bostian (2016), North Carolina Waves GPA Wand, Students Magically College Ready adapted from research of Belfield & Crosta, 2012 – see also Table 1: http://bit.ly/Belfield2012 (cf also Scott-Clayton, 2012)

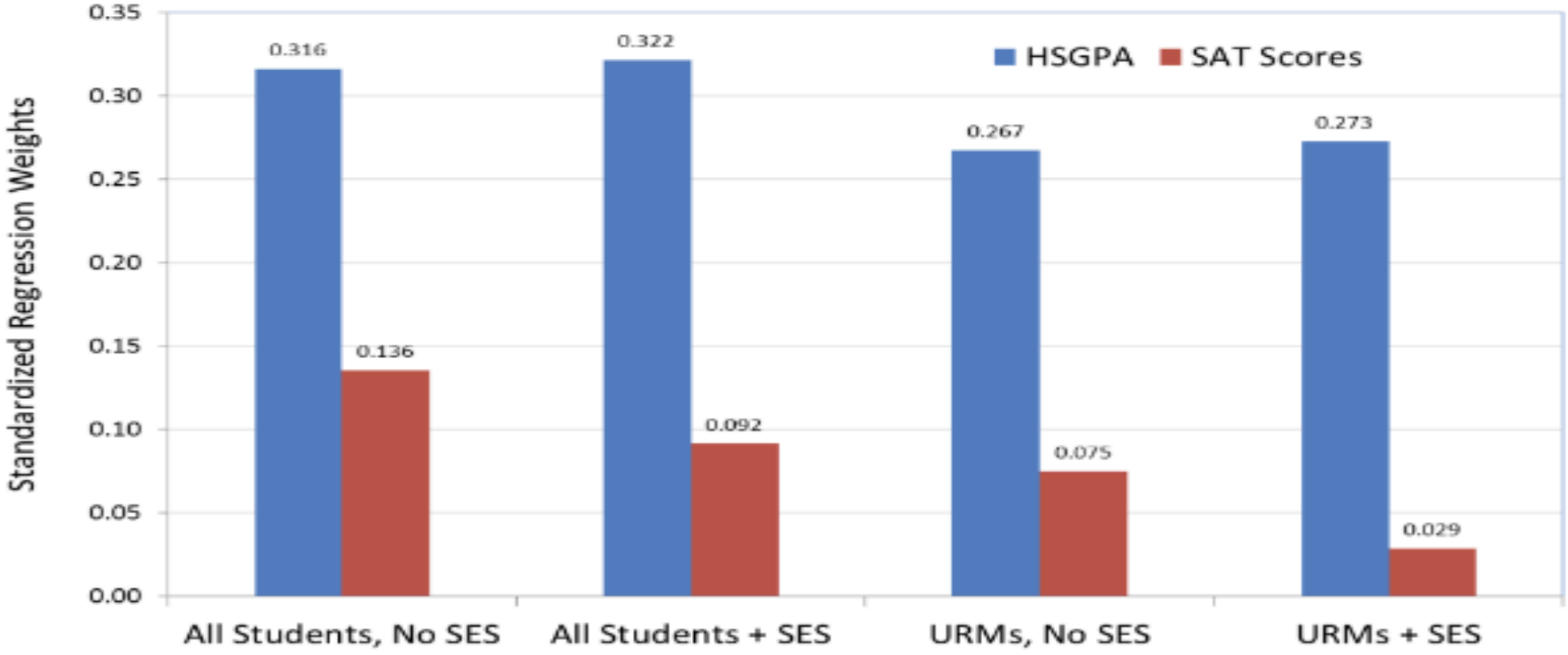
Variance in college level English grades explained by various assessments - NC



Adapted from Bostian (2016), North Carolina Waves GPA Wand, Students Magically College Ready adapted from research of Belfield & Crosta, 2012 – see also Table 1: http://bit.ly/Belfield2012 (cf also Scott-Clayton, 2012)

Figure 10

Relative Weight of High School GPA and SAT Scores, Before and After Controlling for SES, in Predicting 5-Year Graduation: All UC Freshmen vs. Underrepresented Minorities, 1994 to 2005

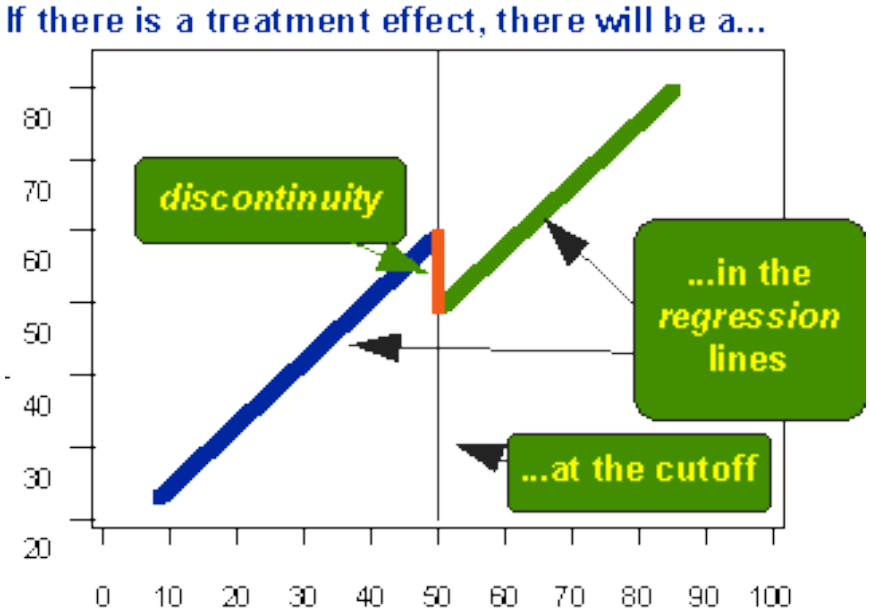


http://bit.ly/Geiser2015

Repetition doesn't improve outcomes/student trajectories

- Regression discontinuity designs compare students on either side of cut score
- Developmental education should have significant positive impact

- Valentine, Konstantopoulos, & Goldrick-Rab (2017) meta-analysis: http://bit.ly/ValentineRD2017
- Placement in developmental education has **"effects that are negative, statistically significant, and substantively large"** for:
  - gateway course completion
  - college credits earned
  - degree/transfer



Overview of Findings on Outcomes for Developmental Students[9]

Positive Negative Null

DEVELOPMENTAL MATH STUDENTS

		Short-Term Impacts			Medium- & Long-Term Impacts		
Study	Level	Persistence	Passed College-Level Math	Grade in College-Level Math	Persistence	College-Level Credits Earned	Credential and/or Transfer
TENNESSEE[10]	UPPER	NEG		NULL (conditional)	NULL	NULL (conditional)	NEG (credential)
TEXAS[11]	UPPER	NULL					NULL
OHIO[12]	UPPER				NULL		POS (transfer)
LUCCS[13]	UPPER		NEG	NEG	NULL	NULL	NULL
FLORIDA[14]	UPPER	NULL	NULL			NULL	NULL
VIRGINIA 1[15]	LOWER vs. MIDDLE		NULL				NEG (credential)
TENNESSEE	LOWER vs. MIDDLE	NULL		NULL (conditional)	NULL	NULL (conditional)	POS (credential)

Note. "Conditional" signifies that only outcomes for students who enrolled in college-level courses, or persisted in college, were compared. LUCCS stands for large urban community college system.

http://bit.ly/CCRCDEVED

DEVELOPMENTAL WRITING STUDENTS

		Short-Term Impacts			Medium- & Long-Term Impacts		
Study	Level	Persistence	Passed College-Level English	Grade in College-Level English	Persistence	College-Level Credits Earned	Credential and/or Transfer
TENNESSEE	UPPER	NEG		NULL (conditional)	NULL	NEG (conditional)	NEG (credential)
VIRGINIA 2	UPPER	NULL	NULL (conditional)			NULL	NULL
LUCCS	Writing & Reading vs. Reading Only		NULL	NULL	NULL	NULL	NULL
VIRGINIA 2	LOWER vs. UPPER	NEG	NULL (conditional)			NEG	NULL
TENNESSEE	LOWER vs. UPPER	POS		POS (conditional)	NULL	NULL (conditional)	NULL (credential)

Note. "Conditional" signifies that only outcomes for students who enrolled in college-level courses, or persisted in college, were compared. LUCCS stands for large urban community college system.

http://bit.ly/CCRCDEVED

IES Report on impact of placement into Developmental Education

- Assignment to development education has no significant positive & some negative impacts for moderately *(at least two of: HSGPA >2.5, one course above Algebra 2, SAT or ACT equivalent > 840)* and strongly prepared students *(see Table A: http://bit.ly/IESRemedial)* on:
  - completing college-level course in discipline
  - number of college credits completed
  - completion of four-year degree
  - exiting college in first two years without a degree

Methods to improve student completion of college level English and Math

- Improve accuracy of assessment through multiple measures
- Redesign developmental education from sequential to corequisite
- Combined approach

Why are multiple measures important in assessment?

- Basic assessment/measurement theory:
  - When you measure something you get:
    - True score (thing you care about)
    - Systematic error (regular error or bias in measurement)
      - Single method increases vulnerability
    - Random error (temporary errors)
      - Single instance increases vulnerability

Why is the use of multiple measures important in assessment?

- Methodological gold standard of assessment
  - To minimize systematic and random error, triangulate to true score through assessment across different:
    - methods of assessment (how)
    - context of assessment (who/where)
    - content domains (what)
    - time (when)

Decision trees revolutionize placement

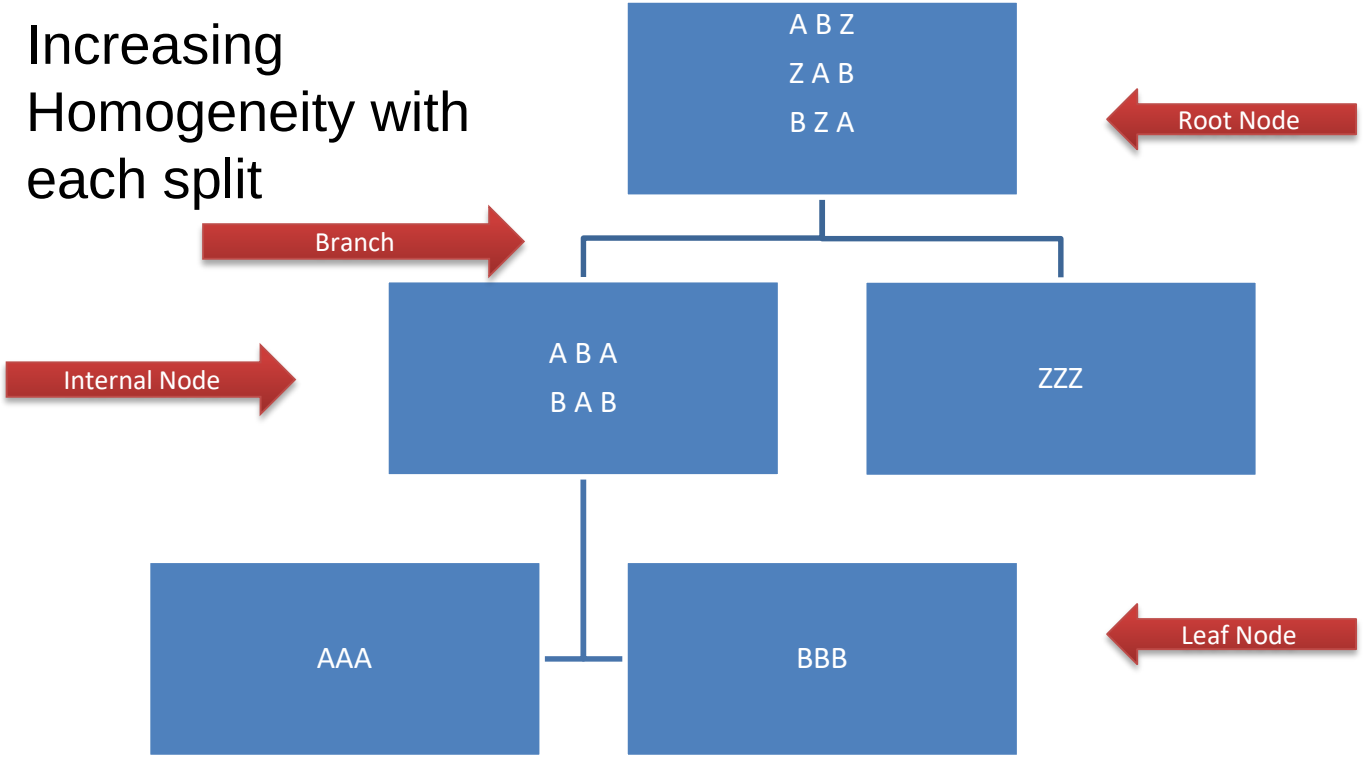
MULTIPLE MEASURES ASSESSMENT PROJECT


Success
Failure

An Engineering Decision Tree

"Does it move?"

Increasing Homogeneity with each split

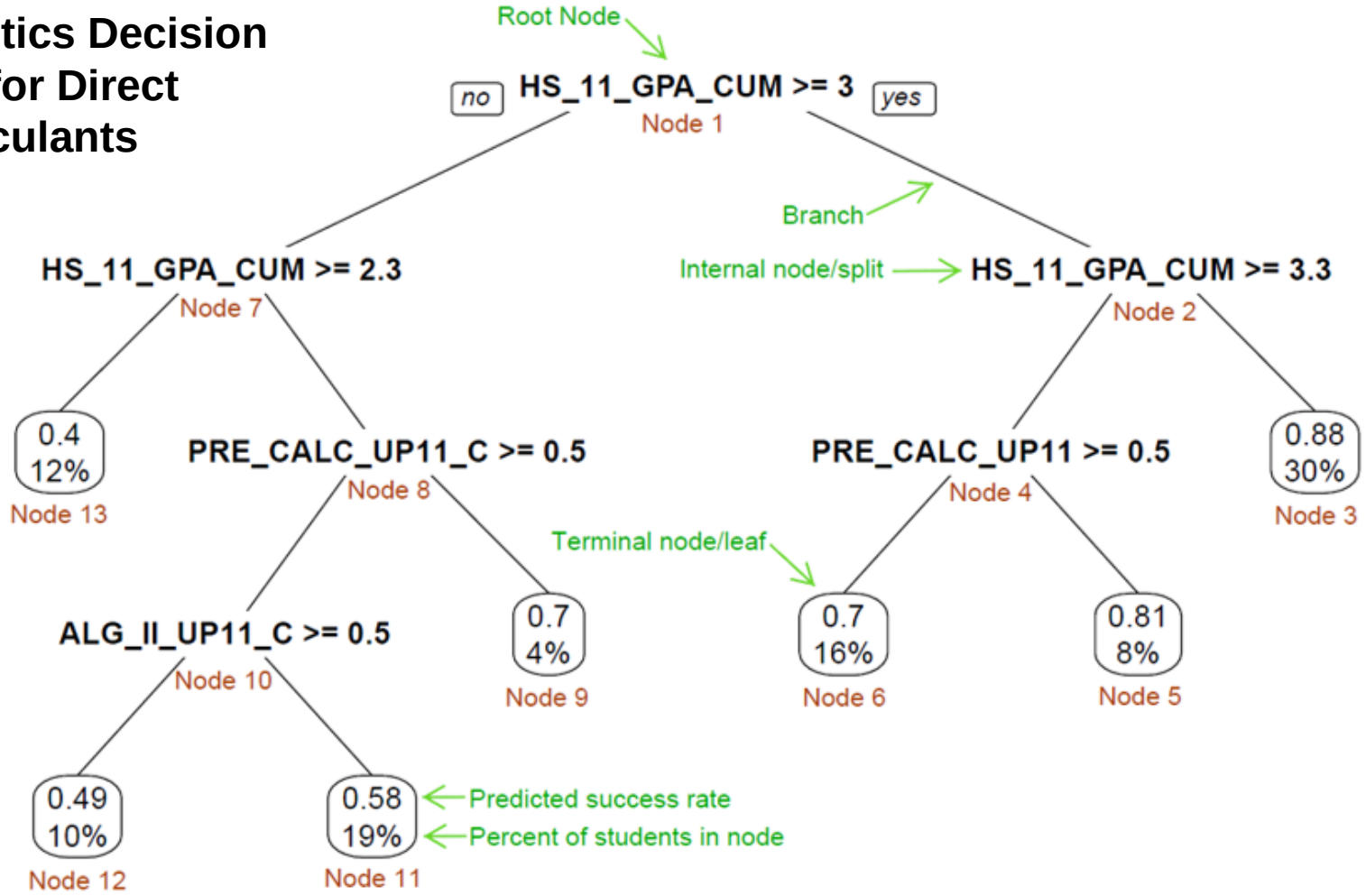


Multiple Measures Assessment Project

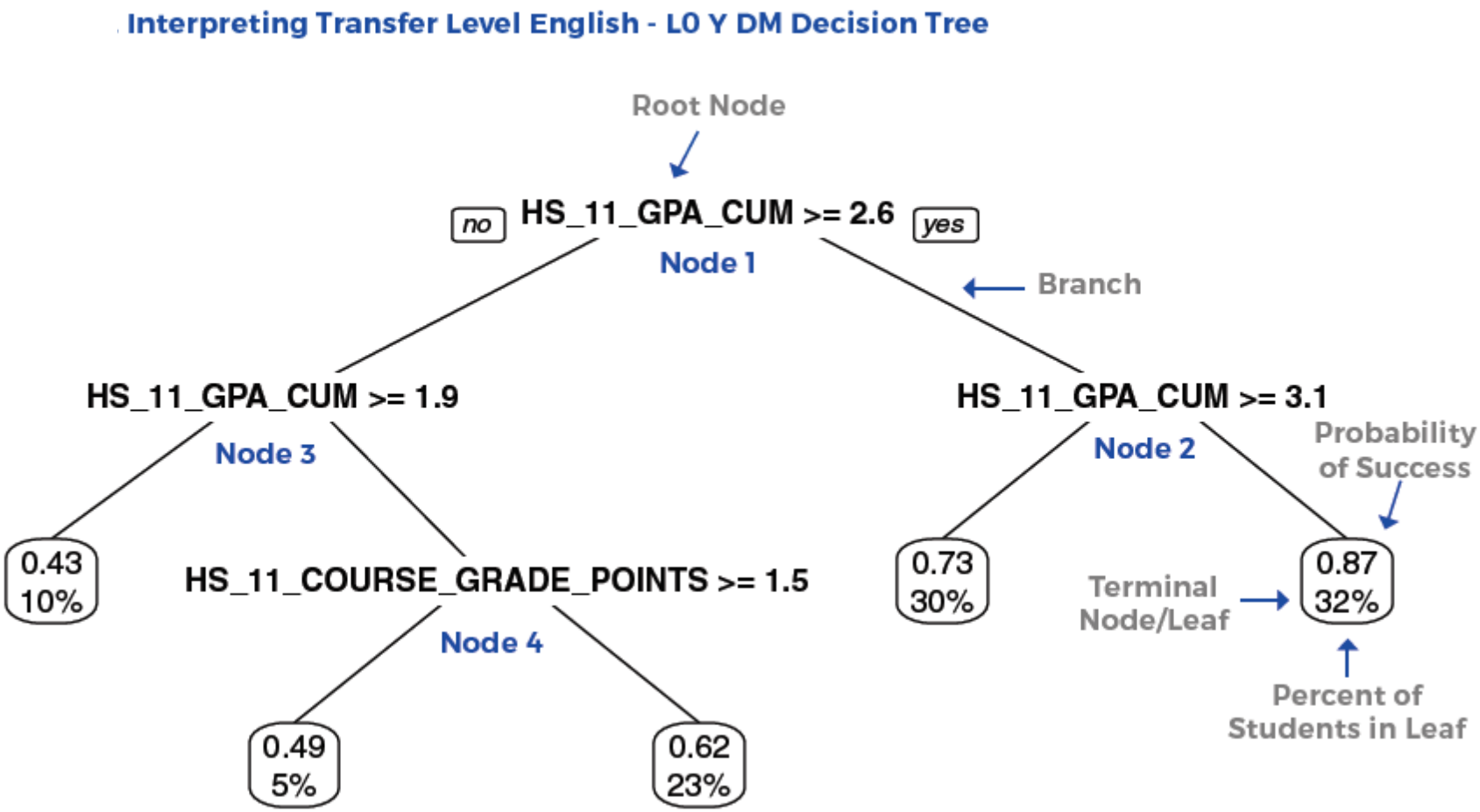
- Collaborative effort of CCCCO, Common Assessment Initiative (CAI), Cal-PASS Plus (Educational Results Partnership & San Joaquin Delta College), RP Group
- Identify, analyze, & validate multiple measures data
  - Including HS data, noncognitive data, & self-reported HS data
  - Focus on predictive validity (success in initial and gateway course)
- Engage ~70 pilot colleges to conduct local replications, test models, pilot use in placement, and provide feedback

bit.ly/MMAP2017

Statistics Decision Tree for Direct Matriculants



How to Read a Decision Tree for English



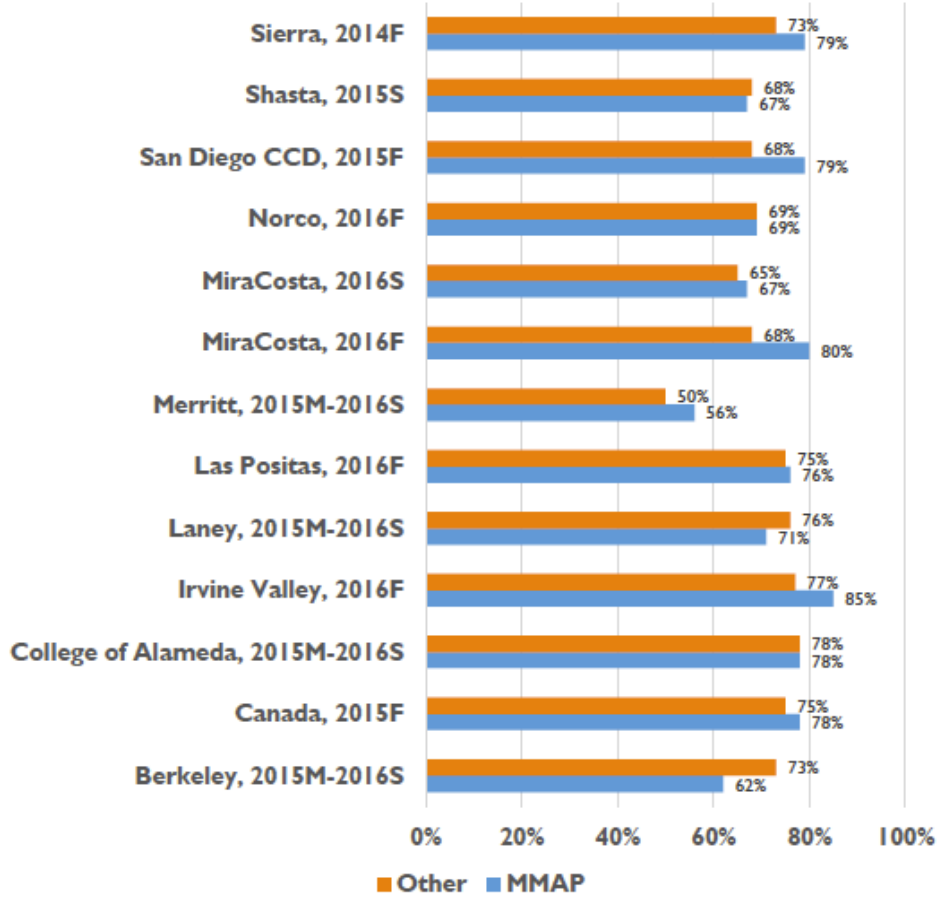
MMAP Transfer-Level Placement Recommendations

Transfer Level Course	Direct Matriculants	Non-Direct Matriculants
Pre-Calculus Passed Algebra II (or better)	HS 11 GPA >=3.4 OR HS 11 GPA >=3.0 AND enrolled in Calculus	HS 12 GPA >=3.3 OR HS 12 GPA >=3.0 AND (C or better in Calculus OR Algebra CST ≥ 340)
Statistics Passed Algebra I (or better)	HS 11 GPA >=3.0 OR HS 11 GPA >=2.3 AND Pre-Calculus C (or better)	HS 12 GPA >=3.0 OR HS 12 GPA >=2.6 AND Pre-Calculus (C or better)
College-level English	HS 11 GPA >=2.6	HS 12 GPA >=2.6

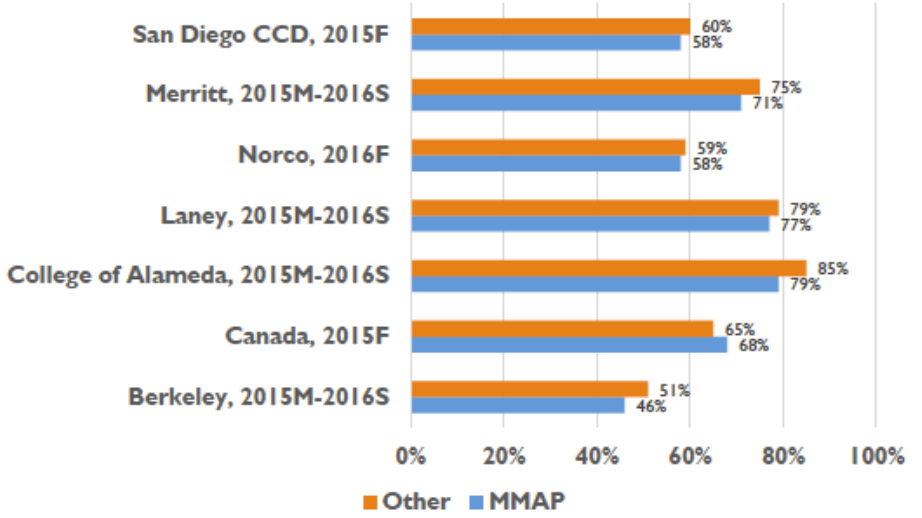
bit.ly/RulesMMAP

bit.ly/MMAPPlacementMatrix

Success Rates in Transfer-level English



Success Rates in Transfer-level Math



bit.ly/MMAPSummary2017

Types of Placement Error

- **Overplacement**: Student is placed above their ability to succeed. Highly visible.
- **Underplacement**: Student could have been successful at a higher level than where placed. Tends to be invisible.

- Total placement error is minimized when over- and underplacement are balanced.

- Current placement systems tend to result in much greater **underplacement error (i.e., false negatives)**.

How can we compare placement methods?

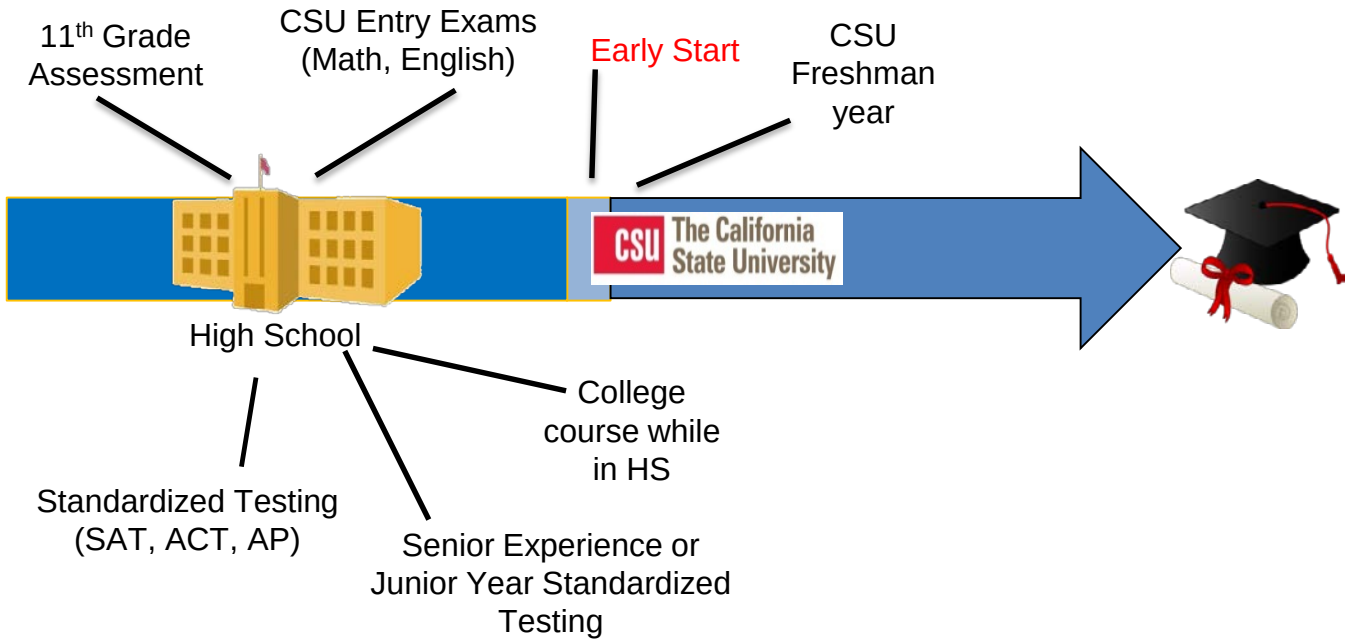
- **Accuracy**: proportion of students correctly predicted to be successful or to be unsuccessful.
- **Other Classification Metrics**: Positive predictive value, Sensitivity, Specificity, etc.
- **1 year throughput rate** (gateway momentum): number of students successfully completing gatekeeper course at the end of a course sequence within 1 year divided by the number of students in the initial cohort.
- **Underrepresented Minority Placement Rate**: Equity and disproportionate impact are major considerations when evaluating performance of placement systems

Managing Errors in Identifying Student Capacity

- Trade off in specificity vs. sensitivity
  - Consider consequences of false positives vs. false negatives
- High sensitivity
  - "…correctly detect students who are capable of succeeding in the college-level course."
  - Avoid false negative of incorrectly telling a student that they will fail
  - Increase sensitivity when *false negatives* are problematic
- High specificity
  - "…correctly detect students who are not going to succeed in the college-level course."
  - Avoid false positive of telling a student who will fail that they will succeed
  - Increase specificity when concerned about *false positives*

- It is easier to identify students who will succeed than those who will fail

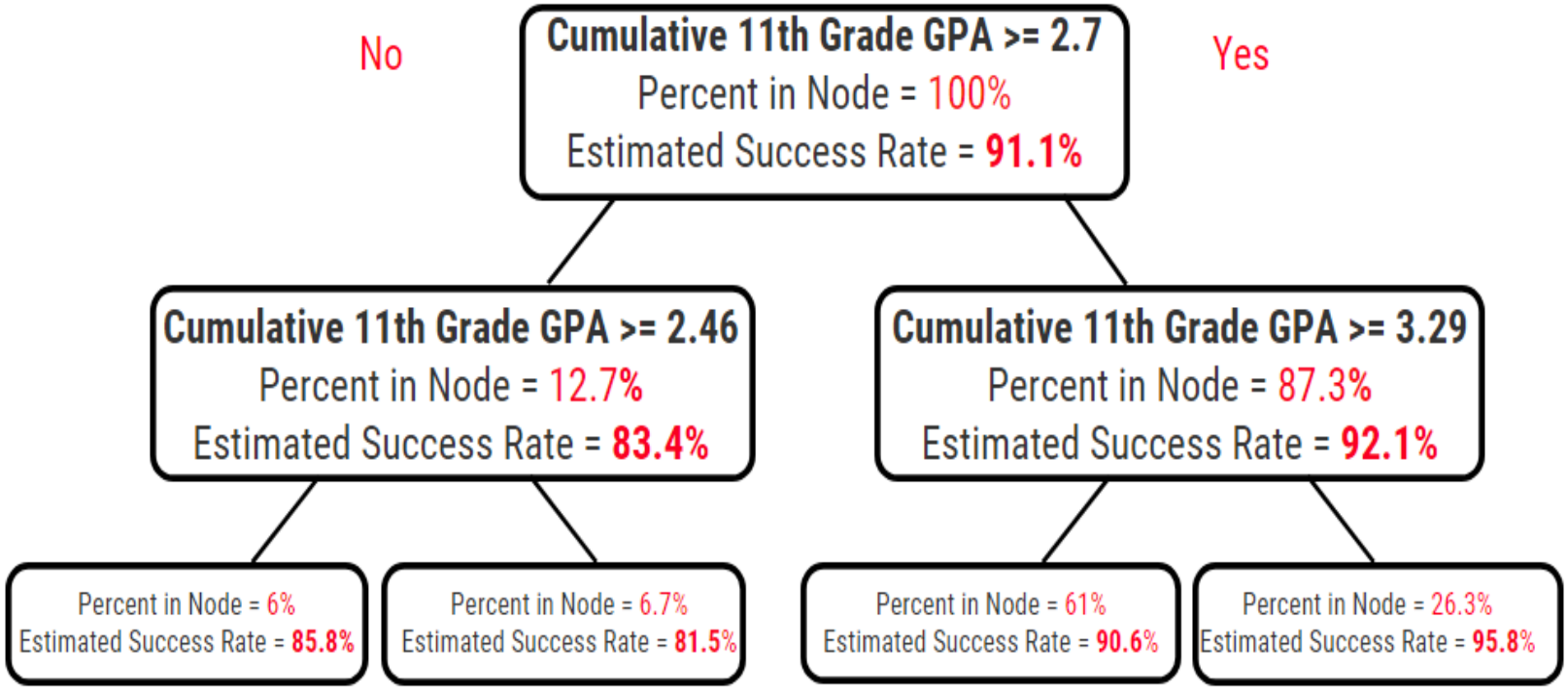
Multiple Opportunities to Achieve and Demonstrate Academic Preparation



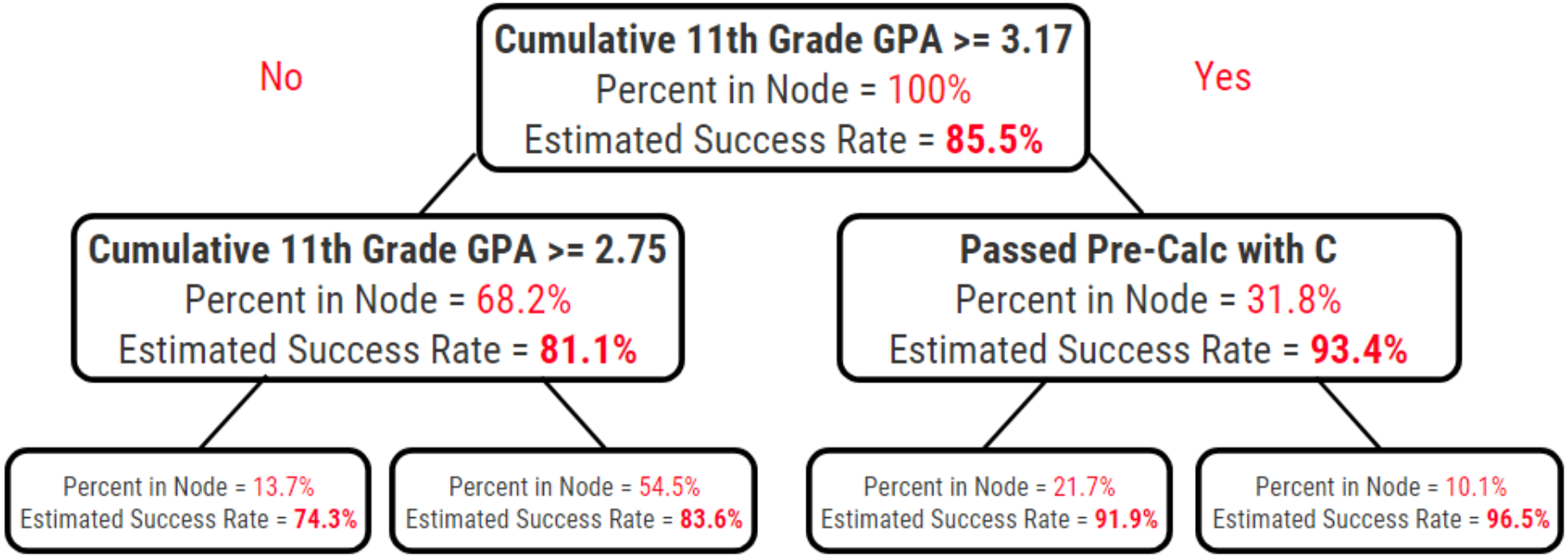
Pattern of evidence replicates with CSU

- A number of CSU campuses have renewed participation in CalPASS Plus, facilitating replication of this research
  - Evidence strongly suggests far more students likely to succeed using two different methods
    - Categorization and regression tree data mining
    - Item Response Theory

Decision Tree Classification Model for Placement into College Level English

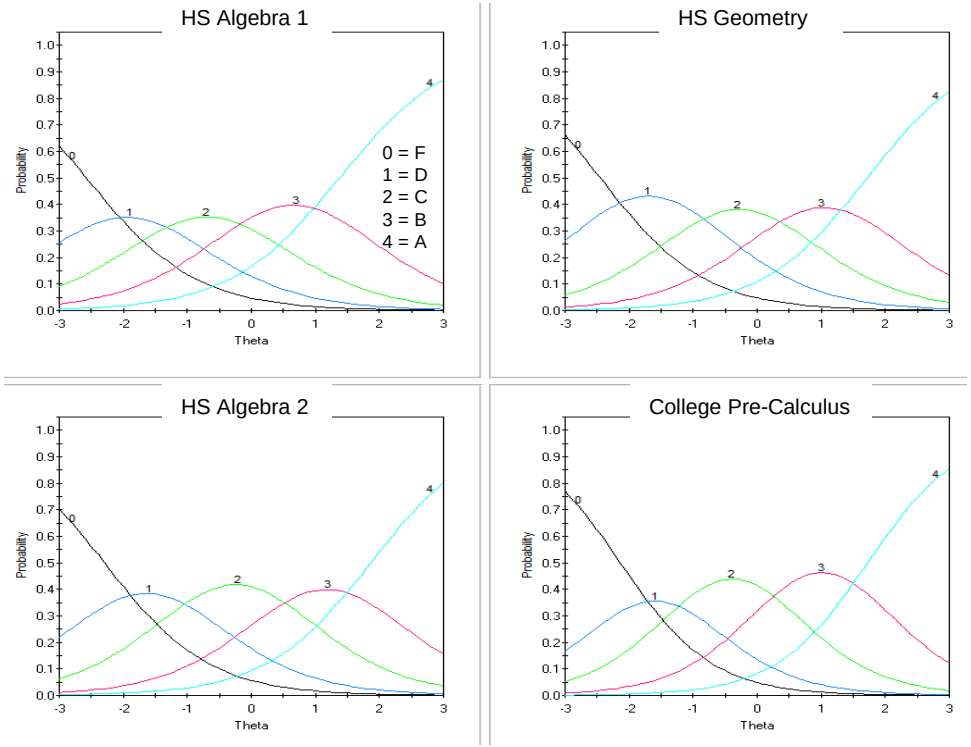


Decision Tree Classification Model for Placement into College Level Math



Multiple Measures Using Item-Response Theory

- Map high school course performance, college course performance, and student ability on the same standardized scale
- Estimate ability of incoming students using high school grades
- Predict the most likely grade in future college-level course



Math Models

- High school
  - Algebra I
  - Geometry
  - Algebra II
  - Trigonometry
  - Pre-Calculus
  - Calculus I
  - Calculus II
  - Statistics
- First course taken in college
  - College-level courses in pathway
  - Developmental courses in pathway

Multiple Measures: Projected First Math Course Grades, CSU A

The expected achievement of **STEM** students in their first math course at CSU A based on their high school records.

Math Courses \ Unweighted Math GPA in High School	3.80	3.70	3.60	3.50	3.40	3.30	3.20	3.10	3.00	2.90	2.80	2.70	2.60	2.50	2.40	2.30	2.20	2.10	2.00	1.90
HS Algebra II	A	A	A	A	A/B	A/B	B	B	B	B	B	B	B	B	B/C	C	C	C	C	C
HS Trigonometry	A	A	A	A	A	A/B	A/B	B	B	B	B	B	B	B	B/C	B/C	C	C	C	C
HS Pre-Calculus	A	A	A/B	A/B	B	B	B	B	B	B	B	B	B/C	C	C	C	C	C	C	C
HS Calculus I	B	B	B	B	B	B	B	B	B/C	C	C	C	C	C	C	C	C	C	C	C/D
Standardized Math Ability Score	1.16	1.03	.90	.77	.65	.52	.39	.26	.14	.01	-.12	-.24	-.37	-.50	-.63	-.75	-.88	-1.01	-1.14	-1.26
Pre-Calculus	B	B	B	B	B/C	B/C	B/C	C	C	C	C	C	C	C	C	C	C	C	C	C
Calculus	A	A/B	A/B	B	B	B	B	B	B	B	B	B	B	B/C	B/C	B/C	C	C	C	C
Developmental College Algebra	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR/NC	CR/NC	CR/NC

Note. n = 1,172 students in STEM majors who took at least one math course at CSU A and matched to high school transcript data in the CAL-Pass Plus system. Mean high school math GPA = 2.89 (SD = .78).

Multiple Measures: Projected First Math Course Grades, CSU B

The expected achievement of **STEM and biological science** students in their first math course at CSU B based on their high school math performance.

First Math Course \ Unweighted Math GPA in High School	3.8	3.7	3.6	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0	1.9
HS Algebra II	A	A/B	A/B	A/B	B	B	B	B	B	B	B	B	B/C	B/C	B/C	C	C	C	C	C
HS Pre-Calculus	A/B	A/B	B	B	B	B	B	B	B	B/C	B/C	B/C	C	C	C	C	C	C	C	C
HS Calculus I	B	B	B	B	B/C	B/C	B/C	B/C	C	C	C	C	C	C	C	C	C/D	C/D	C/D	C/D
Standardized Math Ability Score	1.58	1.46	1.34	1.22	1.10	.98	.85	.73	.61	.49	.37	.24	.12	0	-.12	-.24	-.37	-.49	-.61	-.73
College Algebra	A/B	A/B	A/B	A/B	B	B	B	B	B/C	B/C	B/C	C	C	C	C	C	C	C	C	C/D
Pre-Calculus	A/B	A/B	A/B	B	B	B	B	B/C	B/C	B/C	B/C	C	C	C	C	C/D	C/D	C/D	C/D	D
Calculus	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	B	B	B	B	B/C	B/C	B/C	B/C	B/C
Elementary Algebra	A/B	A/B	A/B	A/B	A/B	B	B	B	B	B	B	B	B	B	B/C	B/C	B/C	B/C	C	C
Intermediate Algebra	A	A	A	A	A/B	A/B	A/B	A/B	A/B	A/B	A/B	B	B	B	B/C	B/C	B/C	B/C	B/C	B/C

Note. *n* = 322 students who declared a STEM or biological science major, took one of the above courses as their first course, and were matched to high school transcript data in the CAL-Pass Plus system. Mean high school math GPA = 2.50 (*SD* = .82).

Multiple Measures: Projected First Math Course Grades, CSU A

The expected achievement of **health and business** students in their first math course at CSU A based on their high school records.

Math Courses \ Unweighted Math GPA in High School	3.80	3.70	3.60	3.50	3.40	3.30	3.20	3.10	3.00	2.90	2.80	2.70	2.60	2.50	2.40	2.30	2.20	2.10	2.00	1.90
HS Algebra II	A	A/B	B	B	B	B	B	B	B	B	B	B	B	B/C	C	C	C	C	C	C
HS Pre-Calculus	A/B	B	B	B	B	B	B	B	B	B	B	B	B/C	C	C	C	C	C	C	C
AP Statistics	A	A/B	A/B	B	B	B	B	B	B	B	B	B	B	B	B/C	B/C	C	C	C	C
Standardized Math Ability Score	1.33	1.20	1.08	.96	.83	.71	.58	.46	.34	.21	.09	-.04	-.16	-.28	-.41	-.53	-.66	-.78	-.90	-1.03
Statistics	A/B	A/B	B	B	B	B	B	B	B	B	B	B	B/C	B/C	C	C	C	C	C	C
Remedial Algebra and Trigonometry	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR

Note. n = 2,066 students in health and business majors who took at least one math course at CSU A and matched to high school transcript data in the CAL-Pass Plus system. Mean high school math GPA = 2.73 (SD = .81).

Multiple Measures: Projected First Math Course Grades, CSU B

The expected achievement of **health, business, and social science** students in their first math course at CSU B based on their high school math performance.

First Math Course \ Unweighted Math GPA in High School	3.8	3.7	3.6	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0	1.9
HS Algebra II	B	B	B	B	B	B	B	B	B	B	B	B	B/C	C	C	C	C	C	C	C
HS Pre-Calculus	B	B	B	B	B	B	B	B	B	B	B/C	C	C	C	C	C	C	C	C	C
HS Calculus I	B	B	B/C	B/C	B/C	B/C	B/C	B/C	B/C	B/C	C	C	C	C	C	C	C	C	C	C
Standardized Math Ability Score	1.57	1.44	1.32	1.19	1.06	.94	.81	.68	.56	.43	.30	.18	.05	-.08	-.20	-.33	-.46	-.58	-.71	-.84
College Algebra	B	B	B	B	B	B	B	B	B	B	B	B/C	B/C	B/C	B/C	C	C	C	C	C
Math for Business and Social Sciences	A/B	A/B	B	B	B	B	B	B	B/C	B/C	B/C	B/C	C	C	C	C	C	C	C	C
Elementary Algebra	A/B	B	B	B	B	B	B	B	B	B	B	B/C	B/C	C	C	C	C	C	C	C/D
Intermediate Algebra	A/B	A/B	B	B	B	B	B	B	B	B/C	B/C	B/C	B/C	C	C	C	C	C	C/D	C/D

Note. n = 848 students who declared a health, business, or social science major, took one of the above courses as their first course, and were matched to high school transcript data in the CAL-Pass Plus system. Mean high school math GPA = 2.56 (SD = .79).

English Models

- High school
  - English 9
  - English 10
  - English 11
  - English 12
  - Expository Writing
  - AP English Language
  - AP English Literature
- First course taken in college
  - First-year requirement
  - First-year requirement prerequisites (college-level)
  - Developmental courses

Multiple Measures: Projected First English Course Grades, CSU A

The expected achievement of incoming students in their first English course at CSU A based on their high school records.

English Courses \ Unweighted English GPA in High School	3.80	3.70	3.60	3.50	3.40	3.30	3.20	3.10	3.00	2.90	2.80	2.70	2.60	2.50	2.40	2.30
12th Grade English	A	A	A	A	A	A/B	B	B	B	B	B	B	B	B	B	B
Expository Writing	A	A	A	A/B	B	B	B	B	B	B	B	B	B	B	B	B
AP English Language	B	B	B	B	B	B	B	B	B	B	B	B/C	C	C	C	C
AP English Literature	A/B	B	B	B	B	B	B	B	B	B	B	B	B	B/C	C	C
Standardized English Ability Score	.95	.80	.65	.51	.36	.21	.06	-.08	-.23	-.38	-.52	-.67	-.82	-.97	-1.11	-1.26
English Composition I	A	A	A	A/B	B	B	B	B	B	B	B	B	B	B	B	B
Academic English	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
Multilingual English Comp I	A	A/B	A/B	A/B	B	B	B	B	B	B	B	B	B	B	B	B
Multilingual Academic English	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR

Note. *n* = 7,804 students who took at least one English course at CSU A and matched to high school transcript data in the CAL-Pass Plus system. Mean high school English GPA = 3.16 (*SD* = .68).

Multiple Measures: Projected First English Course Grades, CSU B

The expected achievement of students in their first English course at CSU B based on their high school English performance.

First English Course / Unweighted English GPA in High School	3.8	3.7	3.6	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.3	2.2	2.1
12th Grade English	A	A	A	A	A	A/B	B	B	B	B	B	B	B	B	B	B	B	B
Expository Writing	A	A	A	A	A/B	B	B	B	B	B	B	B/C	C	C	C	C	C	C
AP English Language	B	B	B	B	B	B	B	B	B	B/C	C	C	C	C	C	C	C	C
AP English Literature	B	B	B	B	B	B	B	B	B	B	B	B/C	C	C	C	C	C	C
Standardized English Ability Score	1.10	.96	.82	.68	.54	.40	.26	.13	-.01	-.15	-.29	-.43	-.57	-.71	-.85	-.89	-1.13	-1.26
College Writing I	A	A	A	A/B	B	B	B	B	B	B	B	B	B	B	B	B/C	B/C	B/C
Developmental Writing I	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Developmental Writing II	A/B	A/B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

Note. *n* = 2,083 students who took one of the above courses as their first course and were matched to high school transcript data in the CAL-Pass Plus system. Mean high school English GPA = 3.01 (*SD* = .72).

Converging bodies of evidence from accelerated and corequisite developmental education

- **Two to five** times transfer-level course completion
  - Especially when using alternative math pathways
- Comparable or higher success rates
- Works across demographic groups & placement levels
- Tremendous equity implications

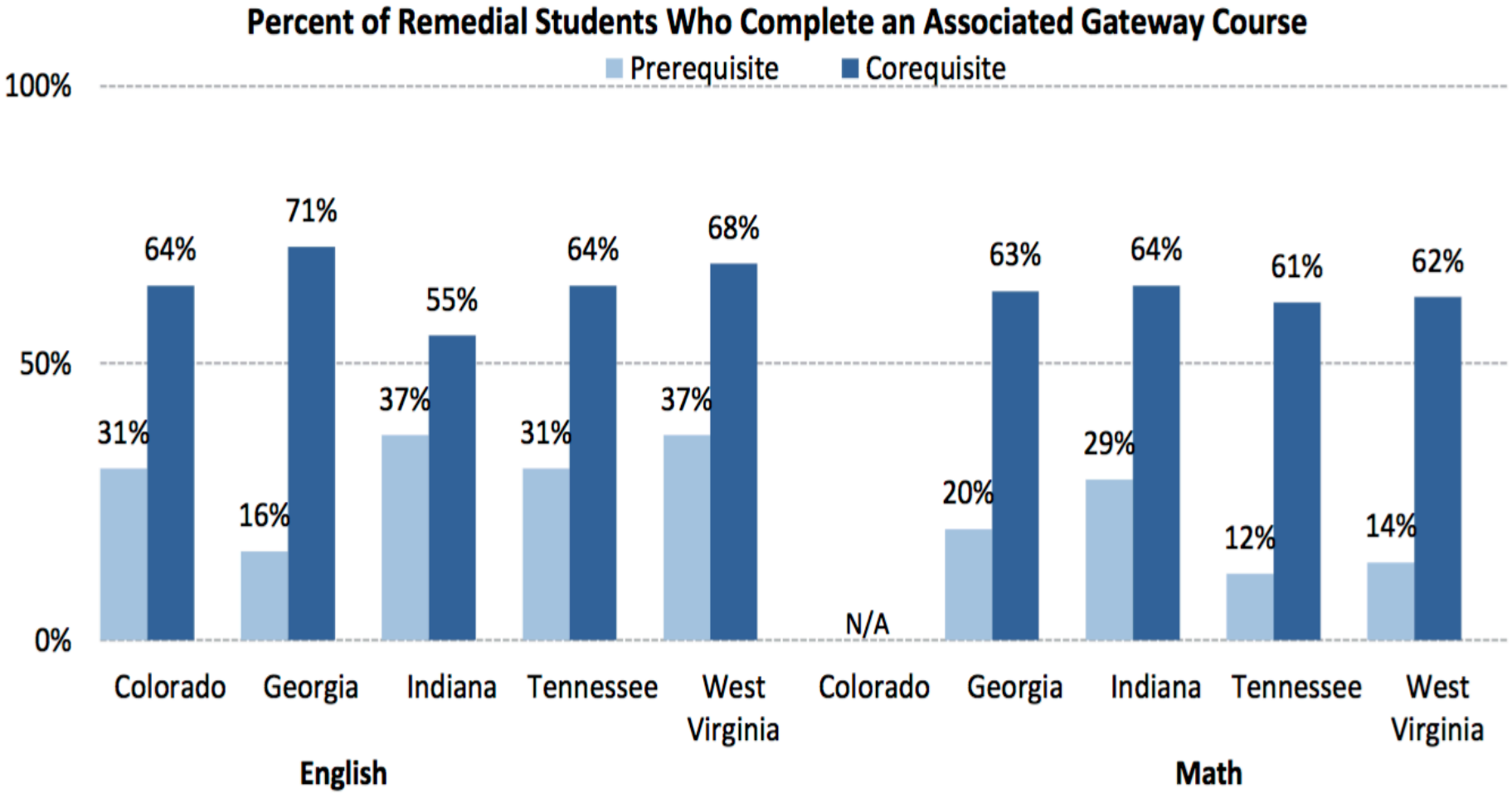
Accelerated Developmental Education

- http://bit.ly/RPCAP
- http://bit.ly/CAPEval
- http://bit.ly/RPAcceleration

Corequisites:

- http://bit.ly/2015ALP (Coleman, 2015)
- http://alp-deved.org
- http://bit.ly/CCACoreq
- http://bit.ly/Kalamkarian2015 (Kalamkarian, Raufman, & Edgecombe, 2015)
- http://completecollege.org/wp-content/uploads/2016/07/Serving-the-Equity-Imperative-Final.pdf
- http://completecollege.org/wp-content/uploads/2016/01/TBR-CoRequisite-Study-Update-Fall-2015-pages-2.pdf

Figure 7.


Percent of Remedial Students Who Complete an Associated Gateway Course
Prerequisite
Corequisite
100%
50%
0%
31%
64%
16%
71%
37%
55%
31%
64%
37%
68%
N/A
20%
63%
29%
64%
12%
61%
14%
62%
Colorado
Georgia
Indiana
Tennessee
West Virginia
Colorado
Georgia
Indiana
Tennessee
West Virginia
English
Math

Putting it all together: Multiple Measures and Corequisite Support

Mathematics at Cuyamaca College

- Disjunctive placement (higher of test-based placement or multiple measures based placement – adapted from Phase 1 MMAP recommendations
  - Algebra I with C or better plus HSGPA ≥ 2.8: **Statistics with corequisite support**
  - Algebra II with C or better and HSGPA ≥ 2.8: **College algebra or higher w/corequisite support**
  - Other MMAP placement recommendations for higher placement without support

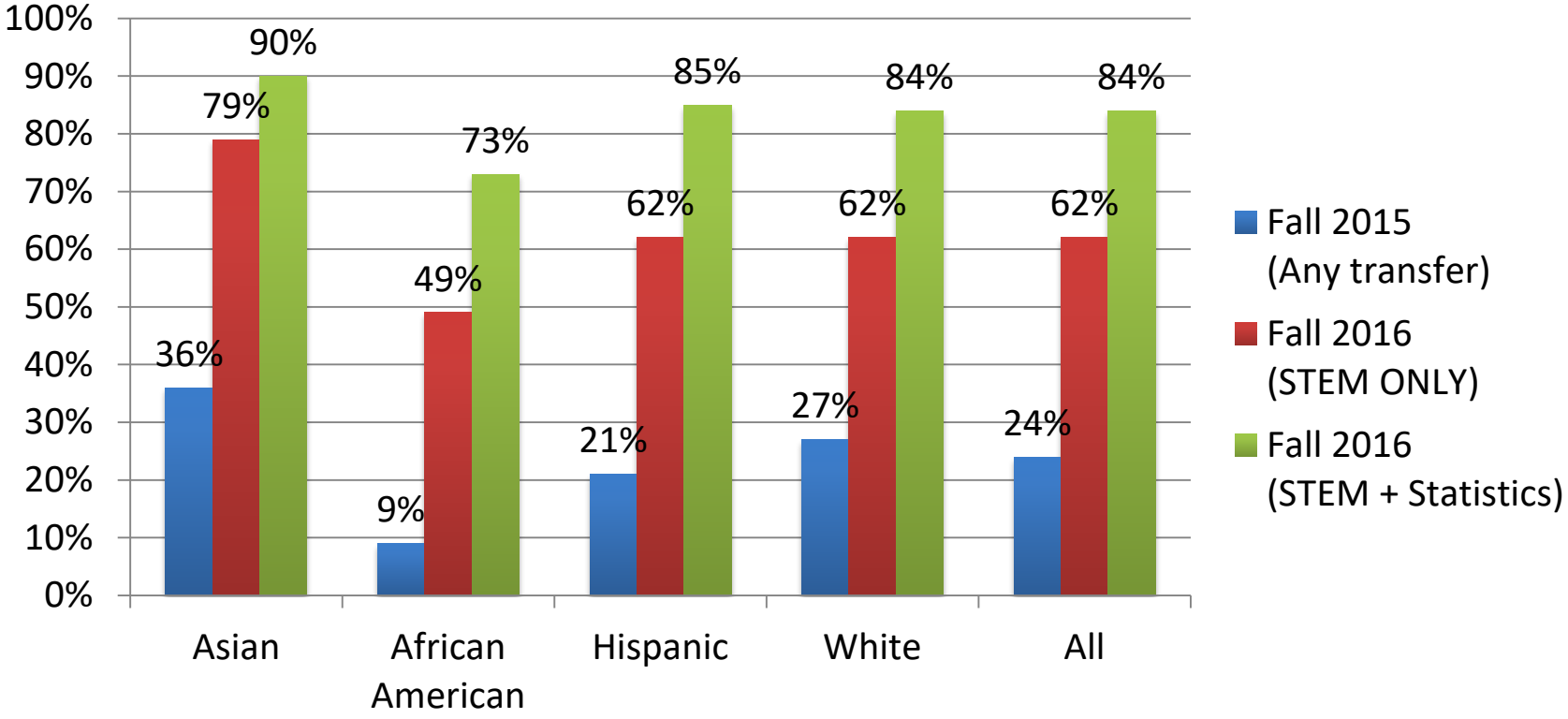
English at Skyline College

- Phased transition over three years
  - Accelerated developmental education at one level below
  - Then MMAP implementation of English placement recommendations and corequisite developmental education courses

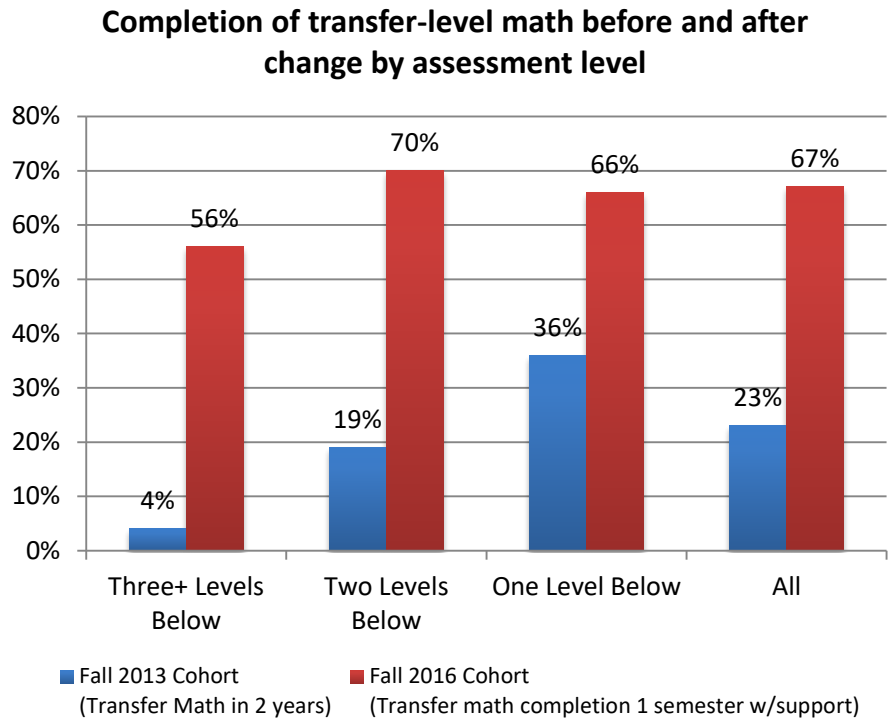
Adapted from MMAP Webinar: *Implementing and Improving Your MMAP Process - Examples from Pilot Colleges, available at* [*http://bit.ly/WebinarsMMAP*](http://bit.ly/WebinarsMMAP)

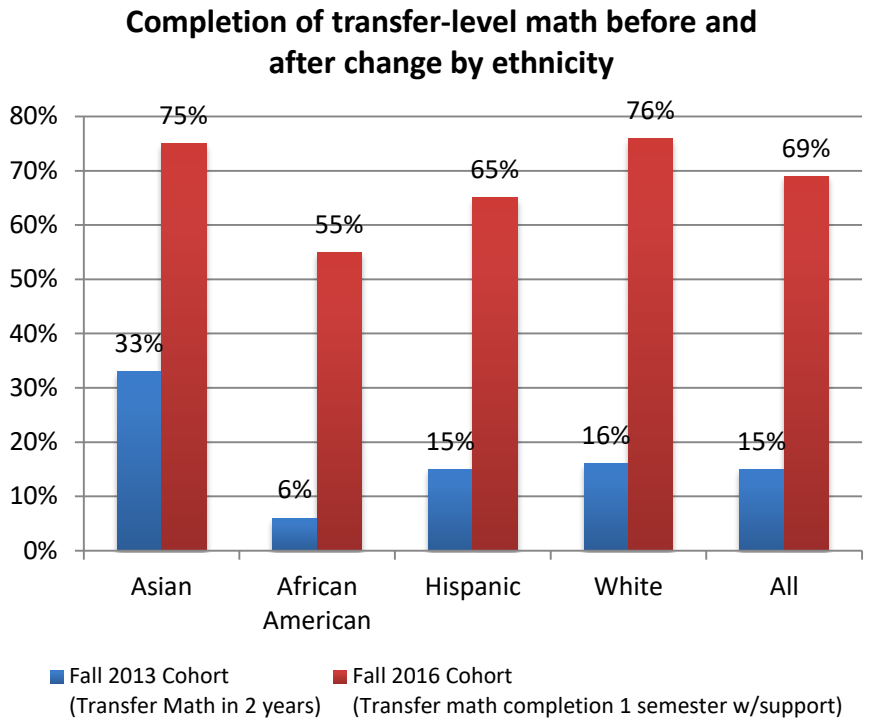
For more, please see recent publications by the California Acceleration Project:
Leading the Way: http://bit.ly/CAPCuyamaca and *Up to the Challenge*: http://bit.ly/CAPChallenge

Transfer level placement by year/method in Math at Cuyamaca

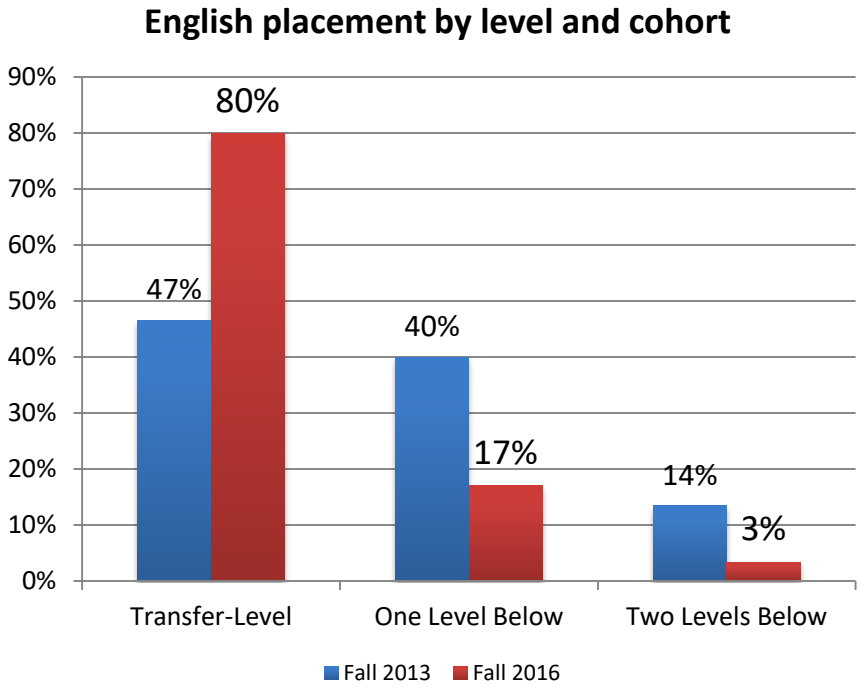


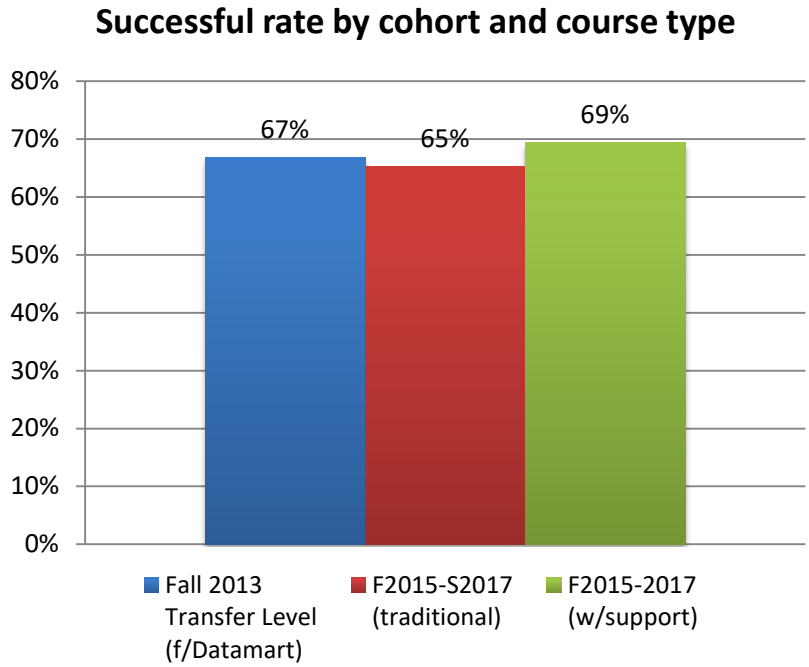
Gateway momentum in Math at Cuyamaca





Gateway momentum in English at Skyline





Summary

- The evidence strongly suggests that:
  - we have been collectively underestimating students' capacity
  - we should put far more trust in efforts of our students and educational colleagues
  - students, especially moderately successful HS students, should be allowed to progress normally as they transition between segments
  - fairer, holistic, and more accurate assessment combined with alternative approaches to providing support to students that actually need it hold tremendous promise for helping our students succeed

  - we need to remember Daedalus' second instruction to Icarus as well
    - It's just as important not to fly too low.

Thank you!

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The Fierce Urgency of Now

- “We are now faced with the fact that tomorrow is today. We are confronted with the fierce urgency of now. In this unfolding conundrum of life and history, there "is" such a thing as being too late. This is no time for apathy or complacency. This is a time for vigorous and positive action.”
  - Dr. Martin Luther King, Jr.