

Measure Twice, Place Once: Understanding and Applying Data on Multiple Measures for College Placement

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Welcome to NOSS!

- Welcome and thank you for coming!
- communitycollegedata.com and [@ccollegedata](https://twitter.com/ccollegedata) (see the Resources page for PDF of this PPT)
- You are very important people; you have an exponential effect on the lives of thousands of students, the economy, the country, and the world
- Please keep up the good work even if it seems too difficult at times; this workshop may help you in this

What is Multiple Measures for Placement?

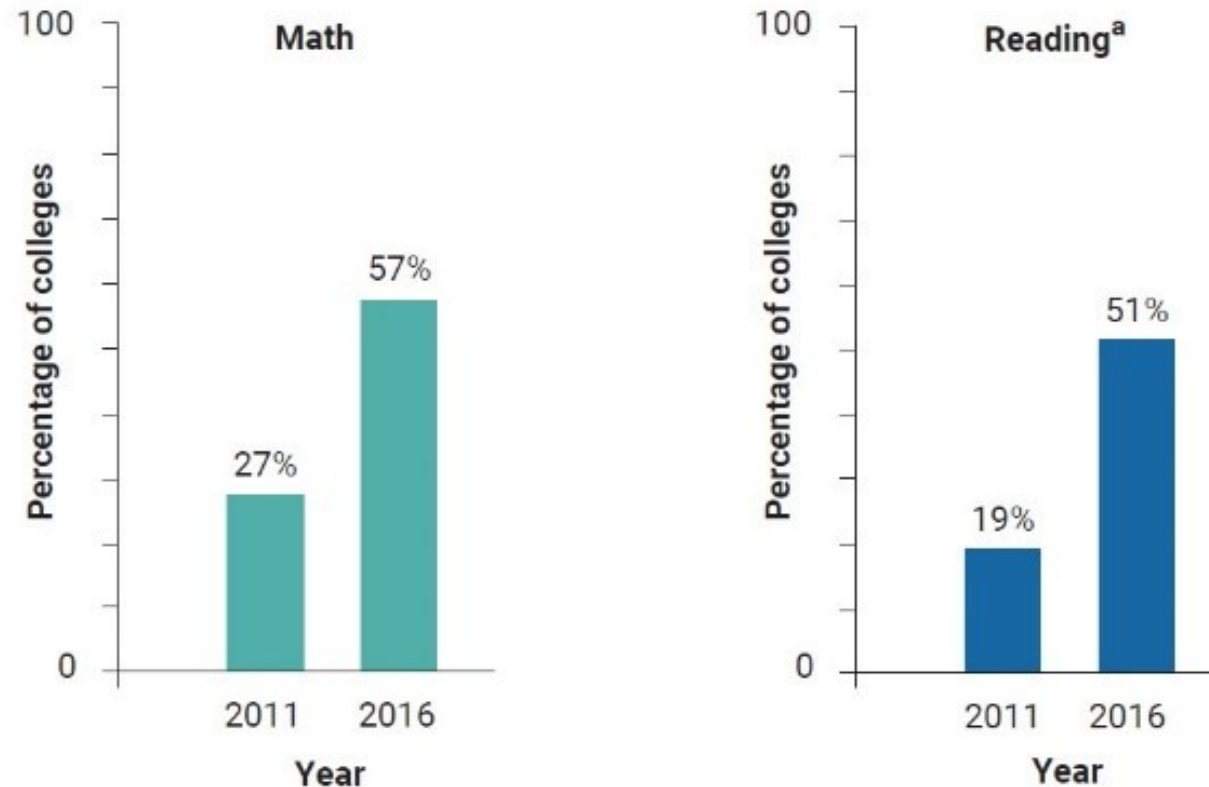
- The problem of relatively low placement accuracy with single-use placement tests (Compass[®] and Accuplacer[®]) was highlighted by the Community College Research Center (CCRC) in 2012 (Belfield & Crosta, 2012; Scott-Clayton, 2012; Scott-Clayton et al., 2012)^{9,12,15}
- The original definition of *multiple measures* was a mixed measure resulting in a single placement number with higher validity^{9,12,15}

More Institutions are Using HSGPA+

- The Center for the Analysis of Postsecondary Readiness (CAPR), an organization created and run by the CCRC, conducted surveys in 2011 and 2016 regarding how many institutions are using multiple measures for placement
- Their 2016 results show an increase of single-metric use to multiple single-metric use, from approximately 25% to 50% of institutions surveyed

Rutschow & Mayer, 2018²⁵

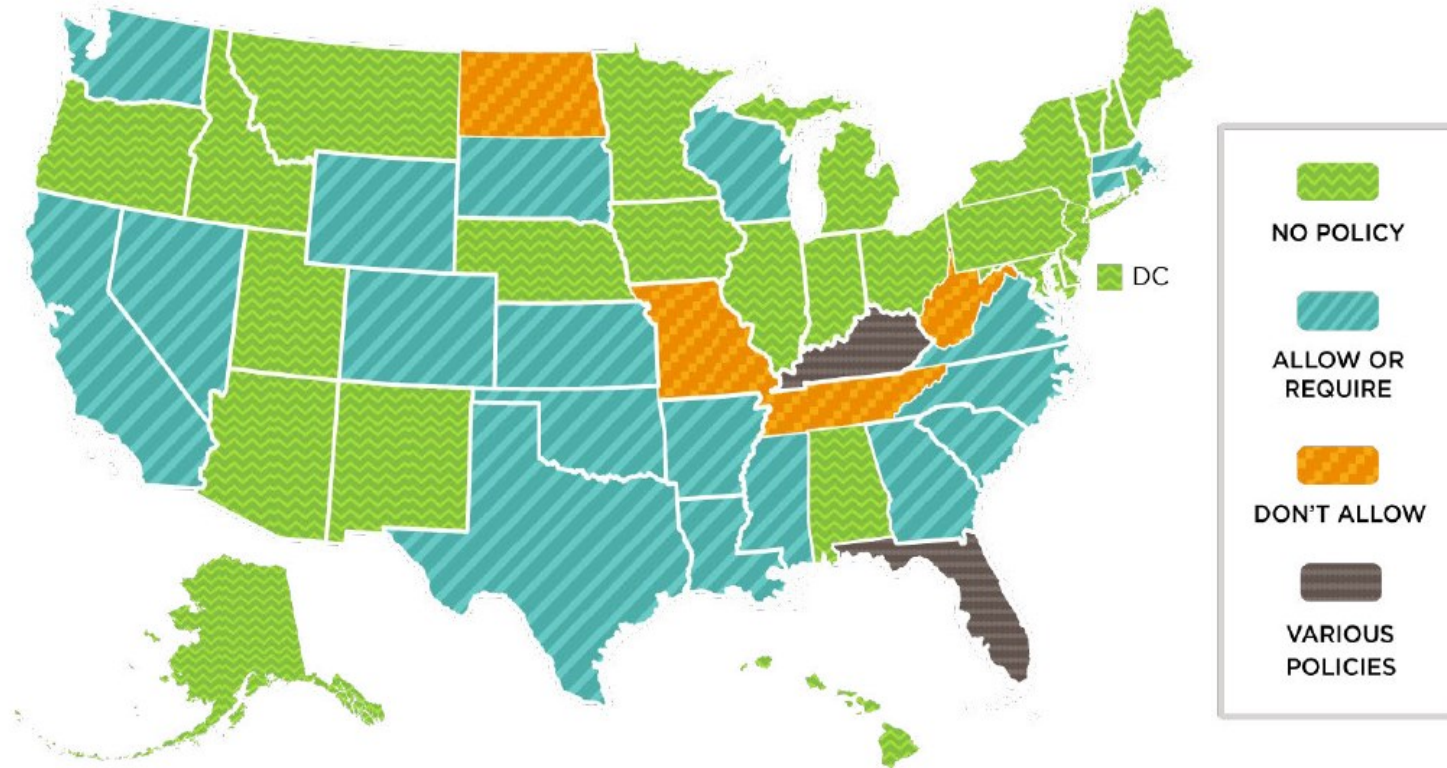
FIGURE 1. Use of Measures Other Than Standardized Tests for Assessment Among Public Two-Year Colleges



SOURCES: 2011 data: Fields and Parsad (2012); 2016 data: CAPR institutional survey.

NOTE: ^aThe Fields and Parsad (2012) reading statistics are for reading placement only, whereas the CAPR survey data are for both reading and writing. Because many colleges are combining reading and writing courses, the CAPR survey grouped them together.

Which States Allow Multiple Measures Placement?



Source: [50-State Comparison on Developmental Education Policies](#).

What is Multiple Measures for Placement?

- Again, the original definition of *multiple measures* was a mixed measure resulting in a single placement number with higher validity (Belfield & Crosta, 2012; Scott-Clayton, 2012; Scott-Clayton et al., 2012)^{9,12,15}
- However, over the course of several years, these researchers changed this recommendation to *multiple single measures*, essentially meaning high school grade point average (HSGPA) could become the primary placement metric instead of placement tests (Belfield, 2014; Scott-Clayton & Stacey, 2015)^{10,11}

What is Multiple Measures for Placement?

- As we will see, it is very difficult for institutions to implement a practical “mixed measure” for placement, even if HSGPA were to be used in place of Accuplacer®
- However, since most institutions will be putting pressure on you to use HSGPA as the primary sole measure, the first part of this workshop addresses the proposed use of HSGPA as a single measure, apart from ACT®/SAT® scores and Accuplacer®, both of which most institutions have accepted as independent single measures

What is Multiple Measures for Placement?

Three-Part Workshop

- This workshop will be broken up into three parts:
 1. The use of HSGPA as a single measure and as a replacement for Accuplacer®
 2. The use of actual mixed measures as an intervention in Upstate NY in five community colleges (Barnett et al., 2018)²⁶
 3. How to implement versions of multiple measures that are practical and low-cost

Part 1:

The use of HSGPA as a multiple single measure

What are Community Colleges Doing Now?

- First, typically ACT[®]/SAT[®] then Accuplacer[®] (Compass[®])
- ACT[®]: Achievement test designed to tell us about student knowledge of math and English
 - Criterion-referenced test
 - Subject-specific
 - Not aptitude test, nor normed
- Accuplacer[®]: Similar to ACT[®] knowledge-based test, designed as placement test for more basic skills

What are Community Colleges Doing Now?

- Why do we use ACT[®]/SAT[®] and Accuplacer[®]?
- Achievement tests place students into courses that assess their content knowledge
- Entire purpose of placement is to assess student knowledge, place students into appropriate courses, and to “remediate” knowledge and skills if necessary
- Fewer staff, restricted budgets, and less time have all led to institutions typically relying on a single measure

Using HSGPA for Placement

- CCRC researchers recommend HSGPA for placement
- Regression analyses suggest 14-28% of students are misplaced (Scott-Clayton & Stacey, 2015)¹⁰
- HSGPA can be used together with placement tests (mixed measure) or can be used individually to place students into college-level or remedial courses
- Why? HSGPA “predicts success in college better”
- This shift in placement philosophy will be discussed later

Using HSGPA for Placement

- Now that we know a little more about placement tests, let's explore what HSGPA is
- What does HSGPA say about a student?
 - What does a *high* HSGPA tell us?
 - What does a *low* HSGPA tell us?
- Talk to your neighbors and come up with as many things you think HSGPA tells us about students (keep in mind it is typically *three years of cumulative* HSGPA)

Group exercise on HSGPA

What Does HSGPA Say About a Student?

Please get in groups and make your own list...

- Content knowledge
- Vocabulary
- Passing classes
- Type of classes taken
- Attendance
- Participation
- Handing in HW
- Organization
- Grit
- Motivation
- Interest in school
- ?

What Does HSGPA Say About a Student?

- What do the experts say about what HSGPA tells us? And what do they say about placement tests such as Compass and Accuplacer?
- Here are several quotes illustrating what scholars and researchers believe it says:

What Does HSGPA Say About a Student?

ETSU Reuschel's "A Comparative Study of HS Academic Pathways" (2009)¹⁴:

"The high school grade point average measures both cognitive and noncognitive components (efforts, attendance, conformity, and motivation)" (pp. 10-11).

What Does HSGPA Say About a Student?

CCRC Scott-Clayton (2012)¹⁵ (never actually defines it):

“I examine whether other measures of preparedness, such as high school background, might be equally or even more predictive of college success” (p. 3).

What Does HSGPA Say About a Student?

Noble et al. (2003)¹⁷ (a source cited in Scott-Clayton, 2012) on placement tests:

“Placement tests are, in many instances, objective measures, and the degree of imprecision (i.e., measurement error) of their scores can be estimated fairly accurately. In addition, test scores can be made equivalent across alternate forms of a test to prevent problems with variability in meaning” (p. 302).

What Does HSGPA Say About a Student?

Noble et al. (2003)¹⁷ on HSGPA:

“Grades, in comparison, are subjective measures whose degree of imprecision is difficult to estimate. They seem efficient for placement decisions because they directly measure, at least in principle, the types of academic skills necessary for successful performance in college (Hills et al., 1990). Course quality and content vary among high schools, however, and grades can vary in meaning from school to school because of differing curricular frameworks and grade reporting procedures” (p. 302).

What Does HSGPA Say About a Student?

CCRC Belfield & Crosta (2012)⁹:

“In contrast to a single-value placement test score, high school transcripts may yield a wealth of information. Potentially, they can reveal not only cognitive competence but also student effort and college-level readiness” (p. 3).

What Does HSGPA Say About a Student?

“Ready to be Counted” (Gabrieli et al., 2015)¹⁹:

“What is the source of difference between test scores and grades, and why are grades better predictors of college success?... The emerging consensus is that grades capture both cognitive and non-cognitive competencies, as teachers observe and value effort, cooperation, and other non-cognitive competencies alongside academic knowledge and skills” (p. 15).

What Does HSGPA Say About a Student?

“Ready to be Counted” (Gabrieli et al., 2015)¹⁹:

“...while grades may be less reliable and valid measures of academic skill or aptitude than well-developed standardized tests, they are better predictors of college completion because they measure both the academic skills and the non-cognitive skills needed to succeed in colleges” (p. 15).

What Does HSGPA Say About a Student?

- Let's now distinguish between the two terms being used, “cognitive” and “non-cognitive”:
 - Cognitive: Knowledge, placement test scores, vocabulary
 - Noncognitive (used to be called “affective”):
Attendance, handing in homework, motivation, grit
- The previous list we came up with can be subdivided into these two groups

What Does HSGPA Say About a Student?

- Now let's compare placement tests to HSGPA in terms of what the studies and statistics show
- Correlation coefficient (r) and coefficient of determination (r -squared) are numbers used to show how well datasets match up (r) and how much of the variance can be explained by one dataset (r -squared)
- In simple terms, the higher the number, the better correlation and thus prediction power

CCRC Scott-Clayton (2012)¹⁵

Table 2
Relationship of College-Level Outcomes to Alternative Sets of Predictor Variables

	Sample restricted to students with high school background data			
	Placement Test Scores Only	High School GPA/Units Only	Placement Test Scores PLUS HS GPA/Units	Test Scores, HS GPA/Units, PLUS Local HS, Years Since HS
Panel A. R-Squared Statistics (Proportion of Variation Explained)				
Math				
Earned B or higher in CL ^a	0.121	0.102	0.165	0.183
Earned C or higher in CL	0.069	0.077	0.109	0.121
Passed CL (D- or higher)	0.040	0.058	0.074	0.078
Grades in first CL ^b	0.129	0.119	0.183	0.204
English				
Earned B or higher in CL	0.021	0.043	0.060	0.093
Earned C or higher in CL	0.008	0.038	0.045	0.059
Passed CL (D- or higher)	0.004	0.034	0.038	0.047
Grades in first CL	0.017	0.055	0.069	0.098

Westrick & Allen (2014)¹³

Table 5

Standardized Logistic Regression Coefficients

Course type (Compass test)	Subgroup	<u>Single-pred. models</u>		<u>Two-pred. model</u>	
		Compass	HSGPA	Compass	HSGPA
English	Overall	0.34	0.64	0.22	0.61
Composition 1 (Writing Skills)	Traditional	0.36	0.76	0.25	0.72
	Nontraditional	0.33	0.38	0.21	0.36
Speech/ Rhetoric (Writing Skills)	Overall	0.36	0.74	0.30	0.69
	Traditional	0.38	0.88	0.29	0.82
	Nontraditional	0.34	0.34	0.30	0.31
American History (Reading)	Overall	0.41	0.80	0.39	0.76
	Traditional	0.33	0.99	0.29	0.96
	Nontraditional	0.47	0.43	0.48	0.38
Other History (Reading)	Overall	0.53	0.72	0.51	0.69
	Traditional	0.54	0.92	0.52	0.89
	Nontraditional	0.60	0.38	0.72	0.35
Psychology (Reading)	Overall	0.49	0.68	0.44	0.63
	Traditional	0.48	0.82	0.39	0.77
	Nontraditional	0.52	0.36	0.47	0.32
Sociology (Reading)	Overall	0.60	0.65	0.51	0.60
	Traditional	0.55	0.81	0.41	0.75
	Nontraditional	0.64	0.40	0.62	0.34
Biology (Reading)	Overall	0.59	0.88	0.52	0.81
	Traditional	0.64	0.94	0.50	0.86
	Nontraditional	0.70	0.63	0.83	0.56
Arithmetic Skills (Pre-Algebra)	Overall	0.60	0.38	0.54	0.30
	Traditional	0.66	0.62	0.67	0.51
	Nontraditional	0.67	0.15 ^a	0.43	0.08 ^b
Elementary	Overall	0.42	0.68	0.38	0.64

What Does HSGPA Say About a Student?

- Overall correlations for both placement tests and HSGPA are similar:

*(r-squared values: .01 = small, .09 = medium, .25 = large)*₂₀

- HSGPA has slightly higher prediction rates
- Dr. Hunter Boylan spoke with CCRC researchers, and they describe r-squared values as 18% for Accuplacer[®] and 24% for HSGPA
- Therefore, HSGPA predicts success slightly better

Primary Benefit to Using HSGPA for Placement

- Benefit:
 - The primary benefit to using three-year cumulative HSGPA for placement into or out of remedial courses is that it predicts student performance slightly better than placement tests alone
 - This means, at first glance, using noncognitives and cognitive measures together helps us know better who will pass college-level courses and graduate, and who will not, before placing them into courses

What Predicts HSGPA?

This raises important questions:

- What should we look for when placing students into remedial courses or college-level courses?
- Should we assess primarily content knowledge?
- Should we assess primarily noncognitives?
- How much of HSGPA is a noncognitive measure?
- If we use more noncognitives, how will that affect us?

Shift in Placement Philosophy

- When HSGPA is considered as primarily a noncognitive measure, the shift from knowledge-based placement assessments (Accuplacer®) to a metric of years of performance and background (HSGPA) is a distinct change in philosophy for community colleges, especially for remedial course placement

Conceptualizing Placement



DEV ED COURSES

**COLLEGE-LEVEL
COURSES**

COMPLETION

Conceptualizing Placement

**ACT®/SAT® and
Accuplacer® assess
knowledge and place
students at beginning of
college-level or Dev Ed
courses**



Conceptualizing Placement

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Researchers are working from
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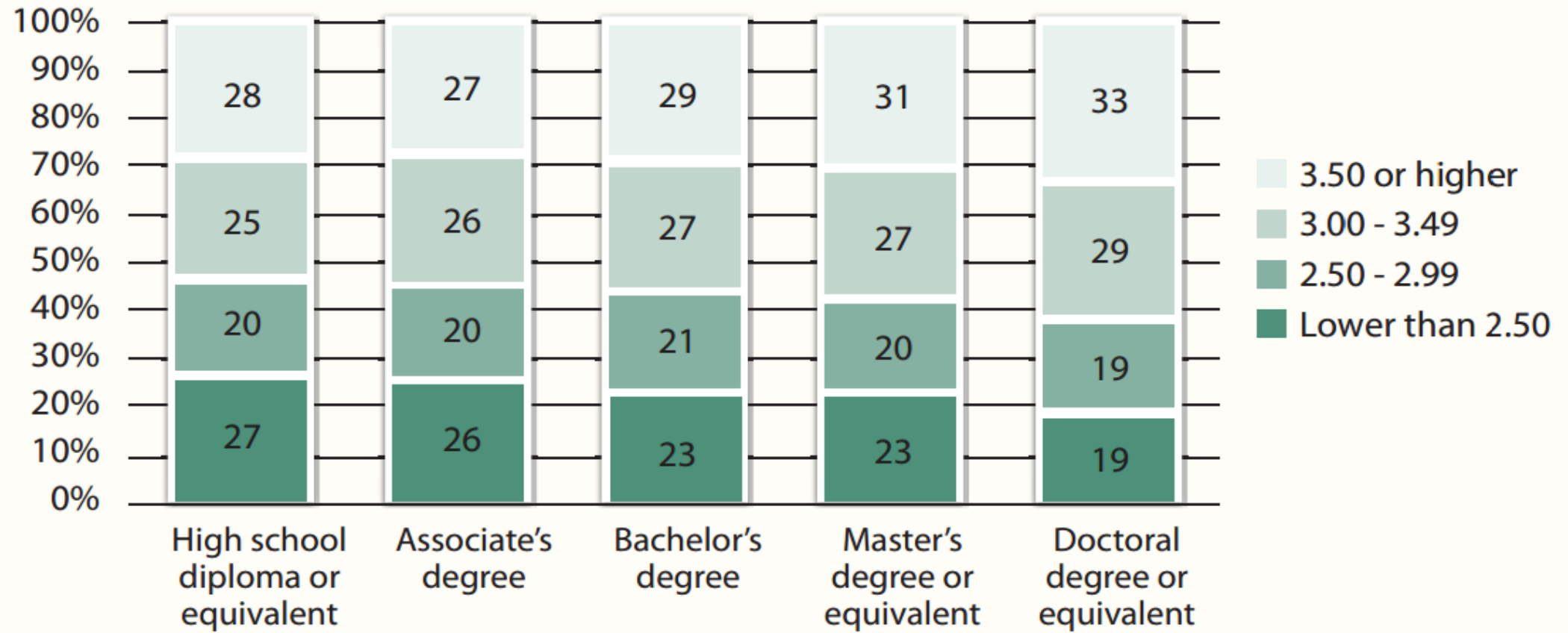
It is a **NEW** use of admissions data for community colleges to place students into Dev Ed or college-level based on prediction of *college success* rather than student knowledge, which was the original design to make sure students get proper placement

What Predicts HSGPA?

- Let's go further with the HSGPA/noncognitive research and investigate what predicts HSGPA
- Research strongly suggests that parental education and socioeconomic status (SES) predict both cognitive and noncognitive student abilities
- If researchers really wanted to predict college success, parental income and education level is probably the best predictor of college completion:

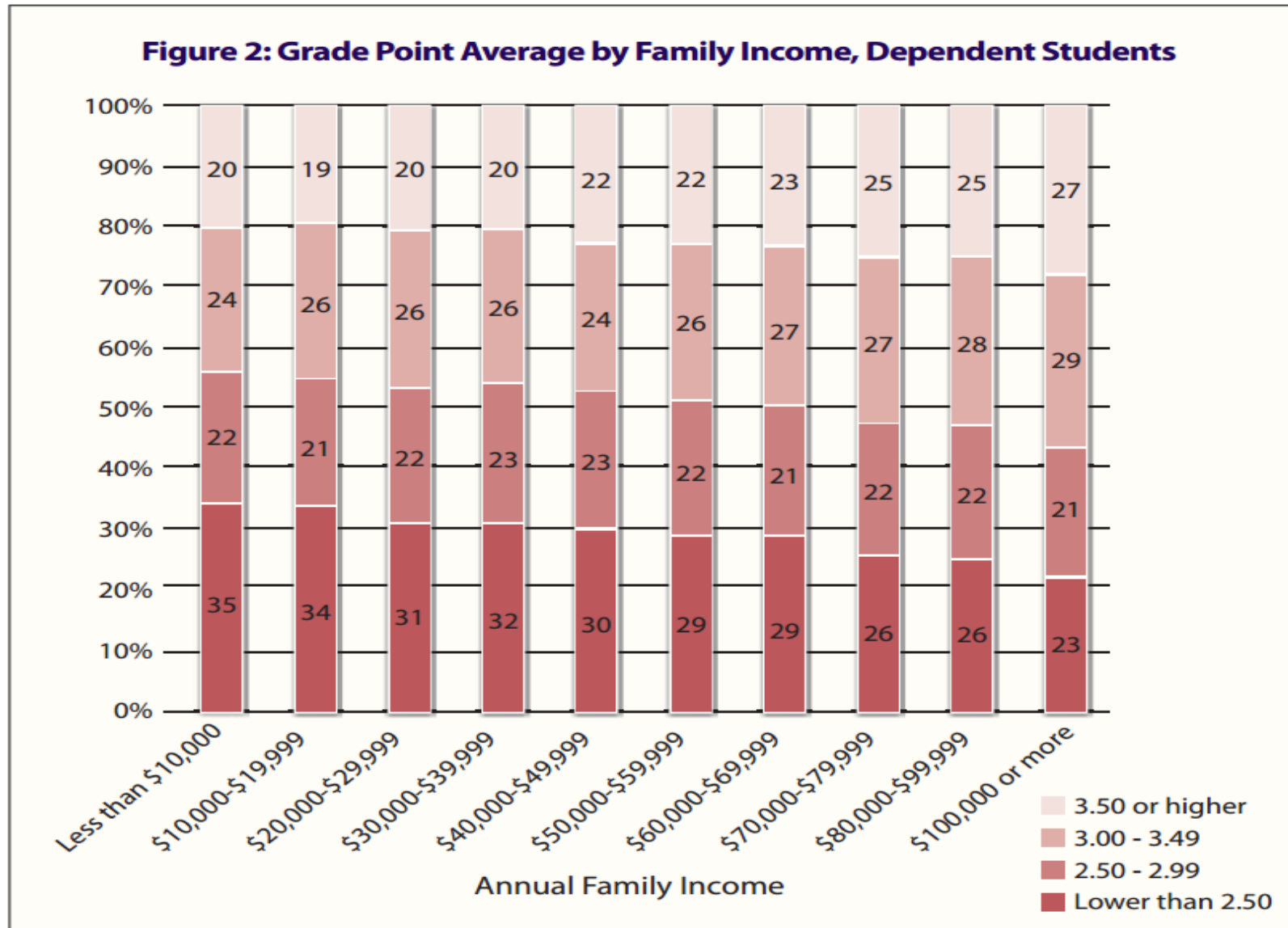
Association of American Colleges and Universities (2010)₃

Figure 1: Grade Point Average by Parents' Highest Education Level



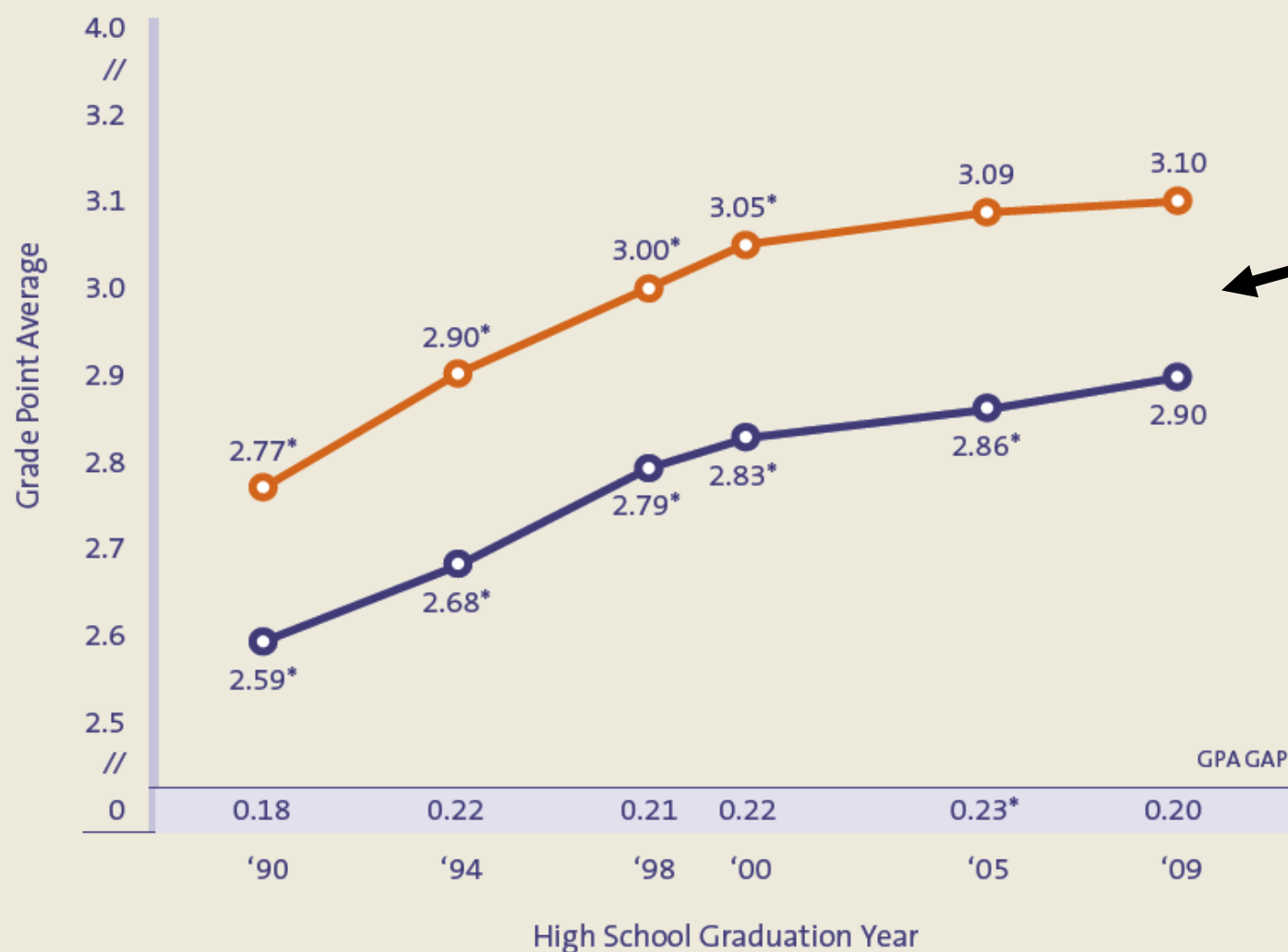
Parents' Highest Education Level (Selected Categories)

Association of American Colleges and Universities (2010)₃



USDOE NAEP Average HSGPA Data (2011)₈

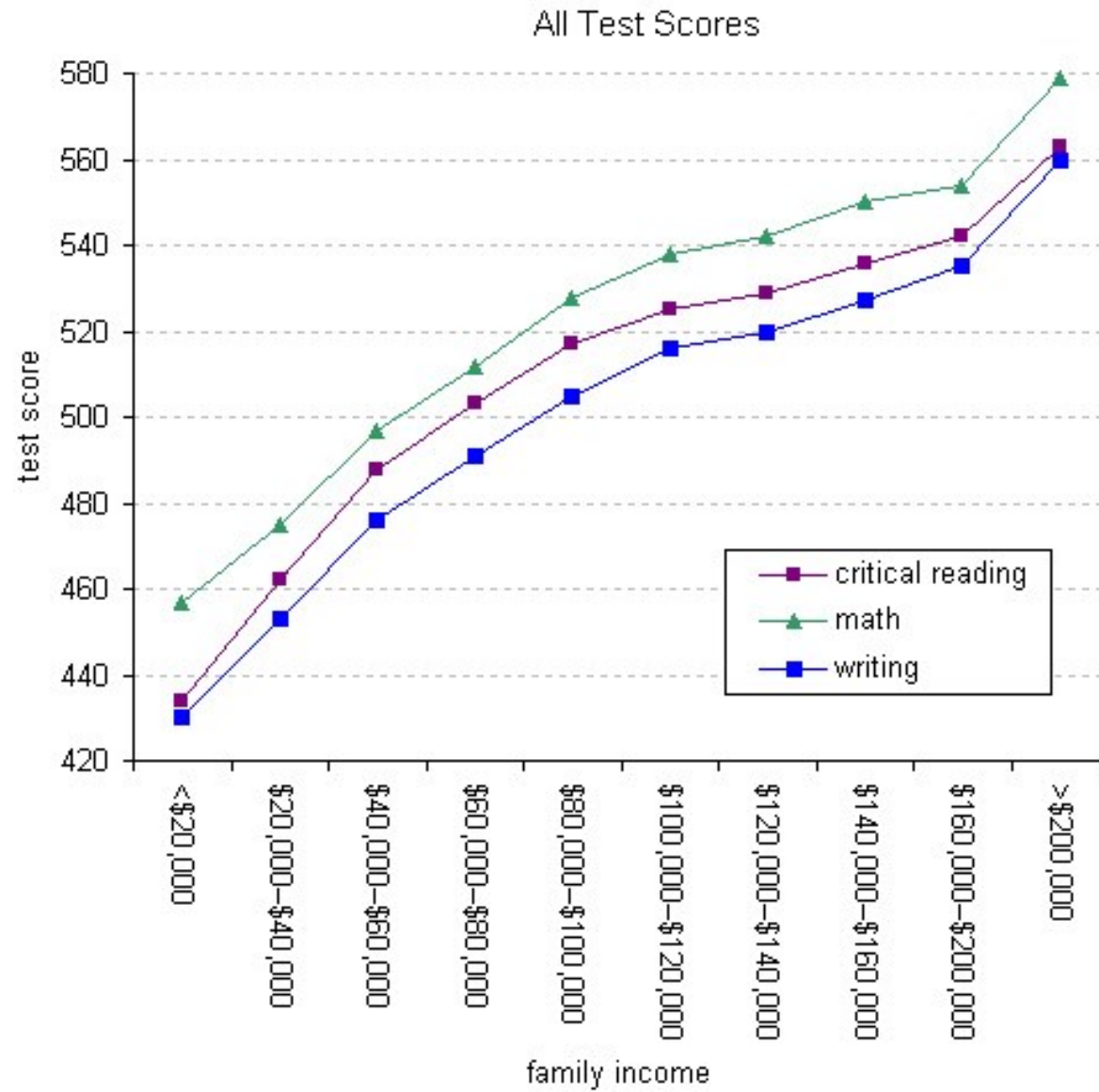
FIGURE 22. Trend in average grade point average and GPA gaps, by gender: 1990–2009



Average HSGPA for all students was 3.0 in 2009



College Board (SAT) Data ($r = .95$)₁

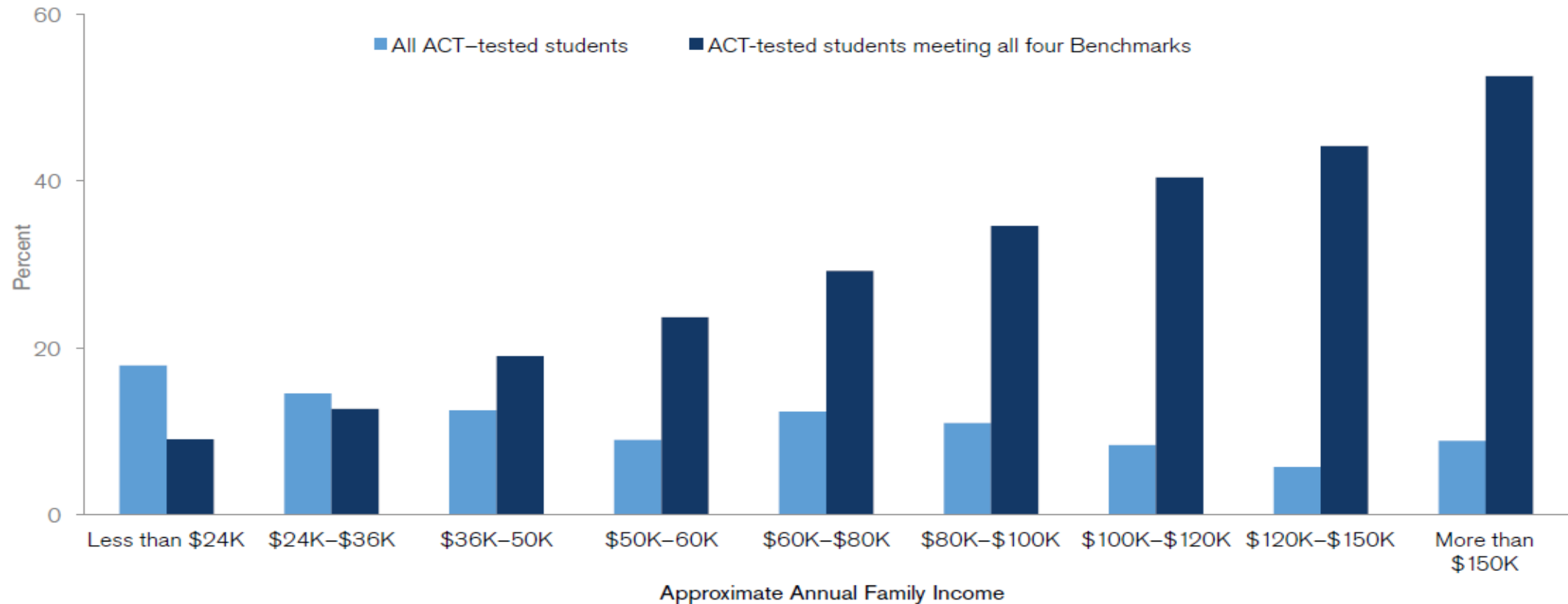


ACT (2012)₂

ACT College Readiness Benchmark Attainment by Annual Family Income Level 2014

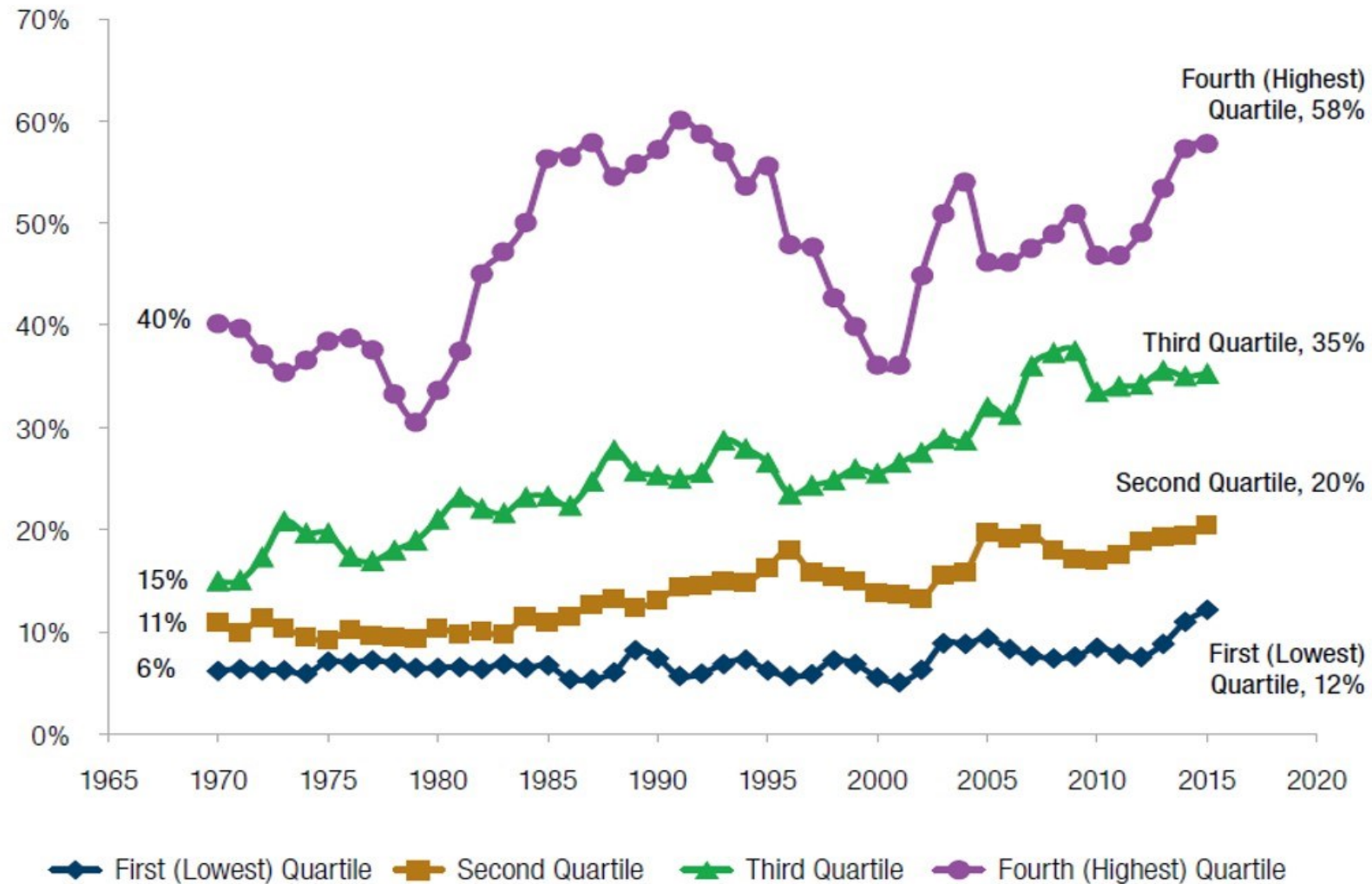
TRACY WILKINSON

ACT College Readiness Benchmark Attainment by Annual Family Income Level



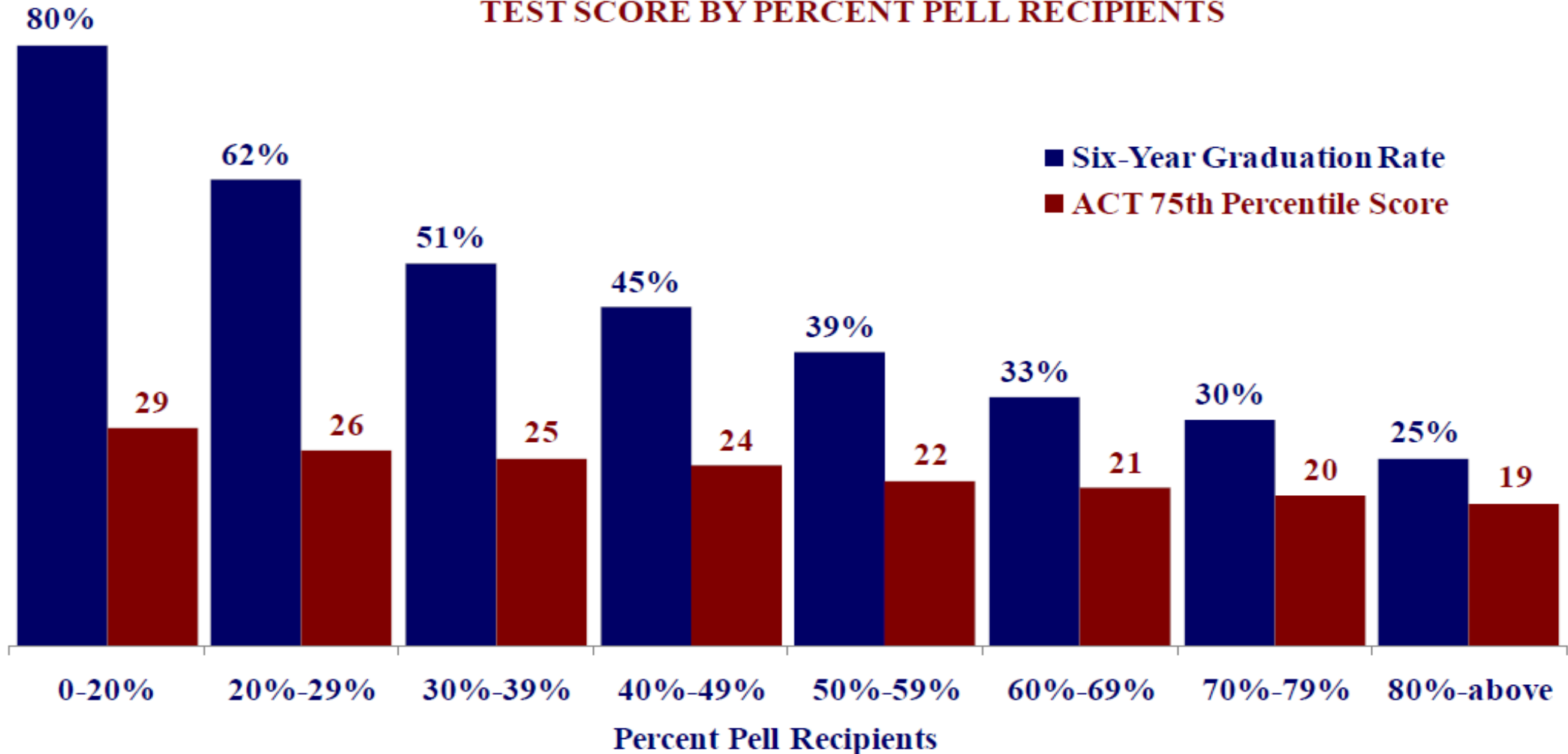
Pell Institute “Indicators of Equity” (2017)₄

Equity Indicator 5a: Estimated bachelor's degree attainment rate by age 24 for dependent family members by family income quartile: 1970 to 2015



“Measure Twice” (2013)₅

**FIGURE 1: SIX-YEAR GRADUATION RATE AND
TEST SCORE BY PERCENT PELL RECIPIENTS**

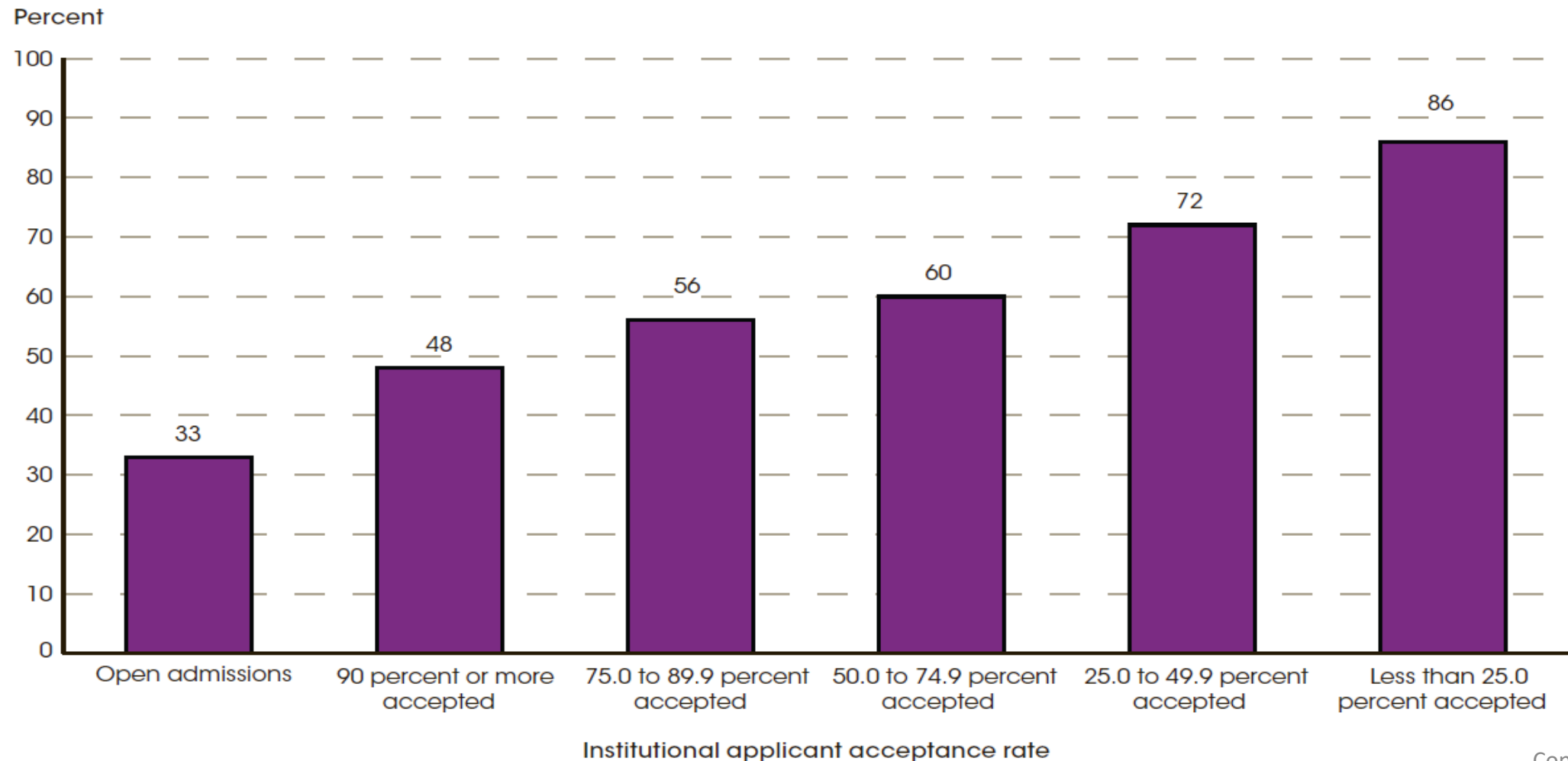


Using HSGPA for Placement

- So how intertwined are noncognitives to life factors such as SES, parental income, school location, etc.?
- HSGPA may predict success in college because it assesses a great deal of lifelong factors; therefore, it is essentially a way to *select* for success
- Community colleges are not as selective for placement/admissions as most universities are (75%)₆
- Here is a chart showing the impact of selectivity on graduation:

USDOE “The Condition of Education 2014”⁶

Figure 3. Percentage of students seeking a bachelor’s degree at 4-year degree-granting institutions who completed a bachelor’s degree within 6 years, by institutional applicant acceptance rate: Starting cohort year 2006



Using HSGPA for Placement

- Again, open-access institutions do not generally engage in much selectivity
- The most selectivity community colleges employ is to allow students to use achievement tests to place into higher-level courses; goal is knowledge-based placement, yet even assessment scores still skew in favor of higher socioeconomic status
- Adding “or HSGPA” may make the SES disparity worse, especially if remedial courses are not supported

Using HSGPA for Placement

- Regarding noncognitives, Angela Duckworth popularized “grit” and its use in predicting success in the 2007 paper, “Grit: Perseverance and passion for long-term goals” in the *Journal of Personality and Social Psychology*²¹
- However, she very recently published an op-ed in the NYT (Duckworth, 2016²²)
- Here is what she said on a related matter, using “grit” to grade schools

Duckworth, “Don’t Grade Schools on Grit” (2016)²²

“Attributes like self-control predict children’s success in school and beyond. Over the past few years, I’ve seen a groundswell of popular interest in character development....It seemed that the narrow focus on standardized achievement test scores from the years I taught in public schools was giving way to a broader, more enlightened perspective. These days, however, I worry I’ve contributed, inadvertently, to an idea I vigorously oppose: high-stakes character assessment” (para. 2–4).

Duckworth, “Don’t Grade Schools on Grit” (2016)²²

“Does character matter, and can character be developed? Science and experience unequivocally say yes. Can the practice of giving feedback to students on character be improved? Absolutely. Can scientists and educators work together to cultivate students’ character? Without question....Should we turn measures of character intended for research and self-discovery into high-stakes metrics for accountability? In my view, no” (para. 23–24).

Duckworth, “Don’t Grade Schools on Grit” (2016)²²

- After reading this, I decided to email Dr. Duckworth at her Duckworth Lab housed in the U of Penn
- I asked her whether we should also apply her stance to placement in community colleges; a lab assistant emailed this response from her:

“I am writing on behalf of Dr. Duckworth. She asked me to inform you...your assumption that the character measures should not be used in admissions decisions is correct” (personal communication, March 28, 2016).

Using HSGPA for Placement

- Aside from HSGPA exacerbating inequality by favoring higher SES, a second unintended consequence with the use of noncognitives is that institutions are using this data in ways that the researchers are cautioning against
- “Predicting success” is rather easy to do once we find the right measures (SES, parental education level, vocabulary by age 3, etc.)
- However, this may not be ethical, nor accurate

Using HSGPA for Placement

- Additionally, a metastudy shows that college attendance is the best predictor of college grades, better than any other measure (Crede et al., 2010)²³
- Does this mean officials should take attendance the first semester for FTIACS and then route students into remedial courses in the second semester?
- Or should institutions only look at detailed HS attendance for college placement?

Using HSGPA for Placement

- So there are a few drawbacks to using HSGPA alone as a measure, which is what many institutions and research interest groups are promoting
- What are some other unintended consequences of using HSGPA alone as the primary measure?

Unintended
consequences of
using HSGPA alone

Unintended Consequences of Using HSGPA

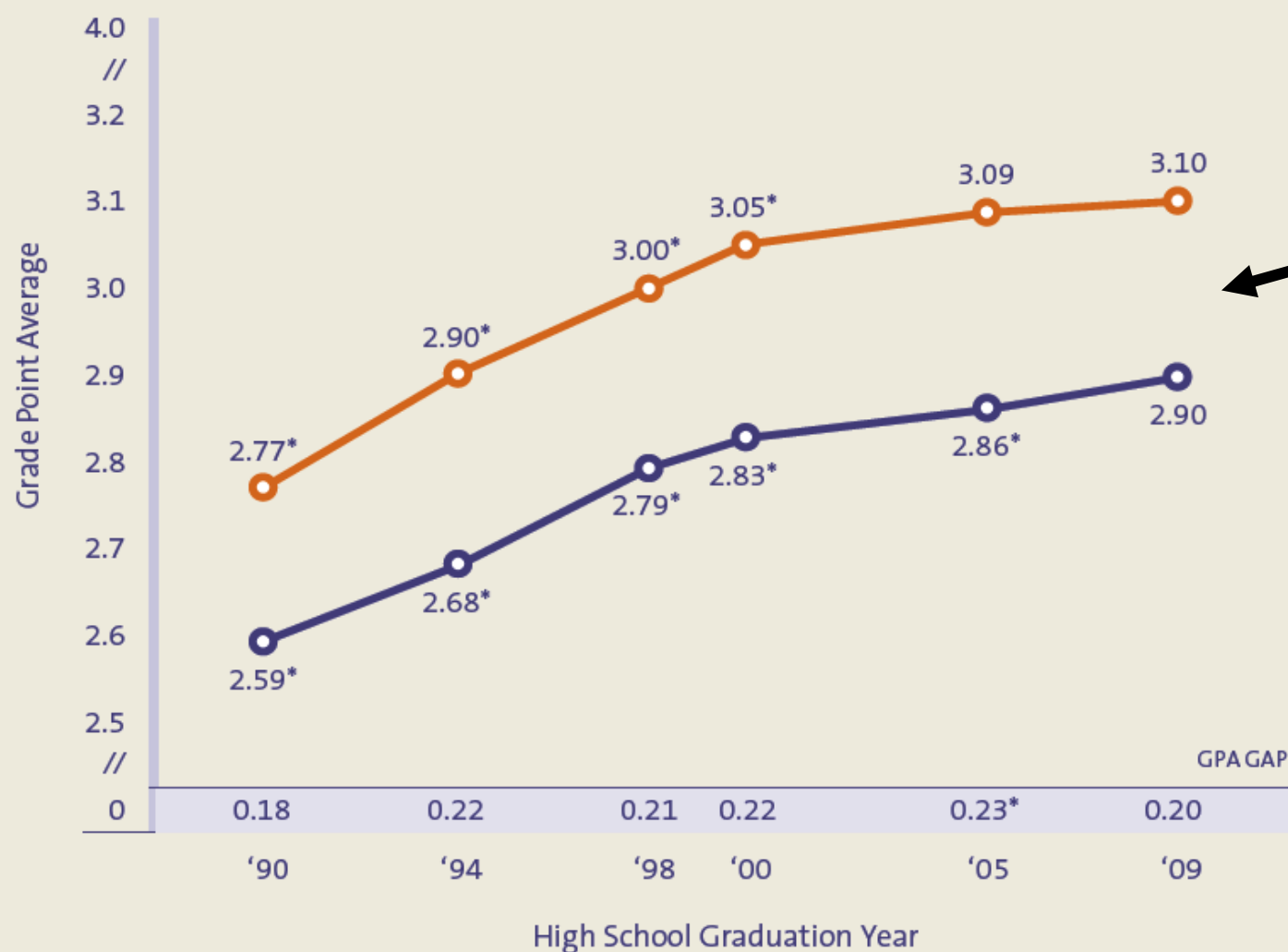
- So is it fair to place students into remediation based on their predicted ability to pass and complete college rather than their knowledge and skills in English and mathematics?
- It is a complicated issue and gets more complicated
- Here are several other possible unintended consequences of employing HSGPA for placement in community colleges:

Unintended Consequences of Using HSGPA

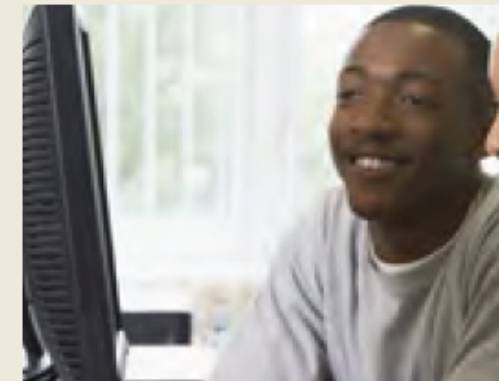
1. More White and Asian students will be placed into college-level courses; more Black and Hispanic students will be placed into remedial courses

USDOE NAEP Average HSGPA Data (2011)₈

FIGURE 22. Trend in average grade point average and GPA gaps, by gender: 1990–2009

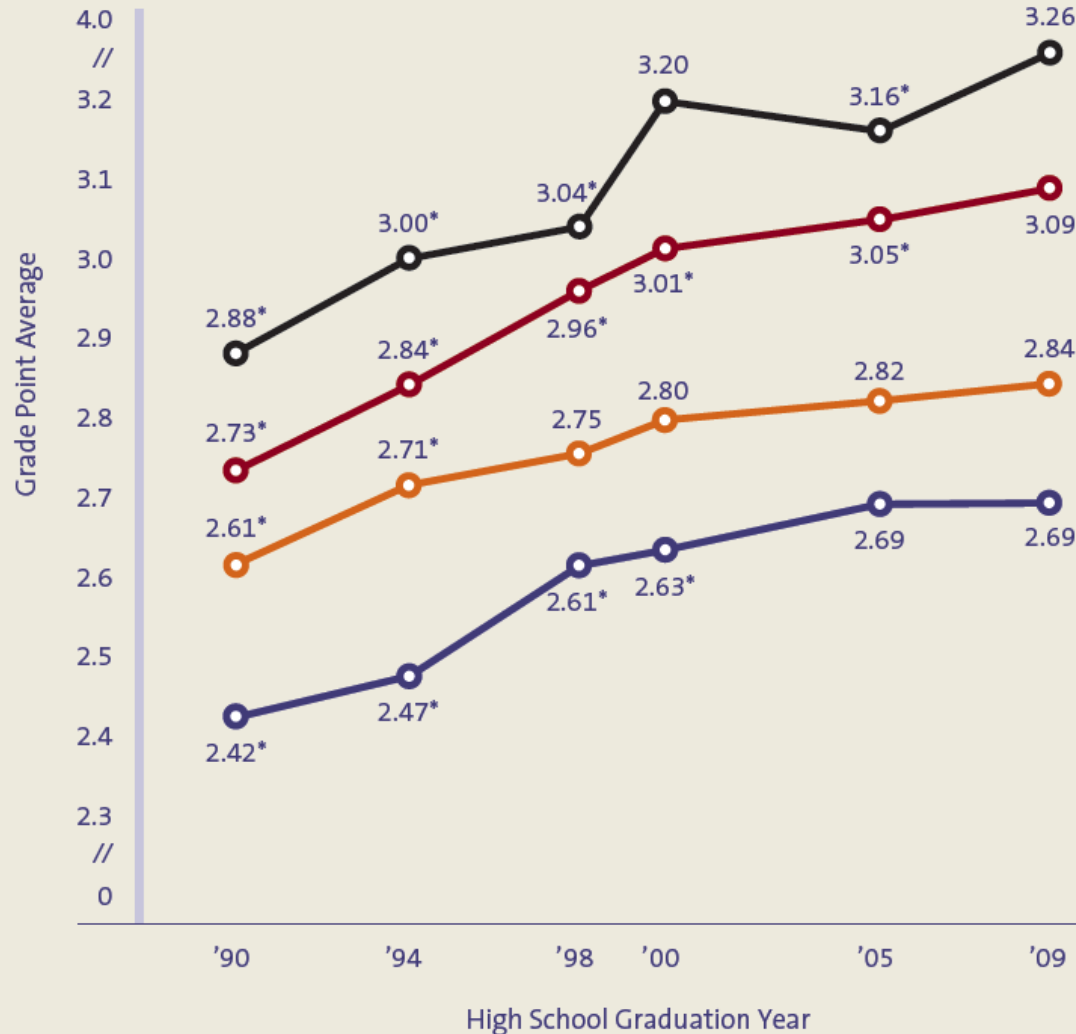


Average HSGPA for all students was 3.0 in 2009



USDOE NAEP Average HSGPA Data (2011)₈

FIGURE 30. Trend in average GPAs, by race/ethnicity: 1990–2009



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, High School Transcript Study (HSTS), various years, 1990–2009.



Unintended Consequences of Using HSGPA

CCRC Scott-Clayton & Stacey Research Overview (2015)¹⁰:

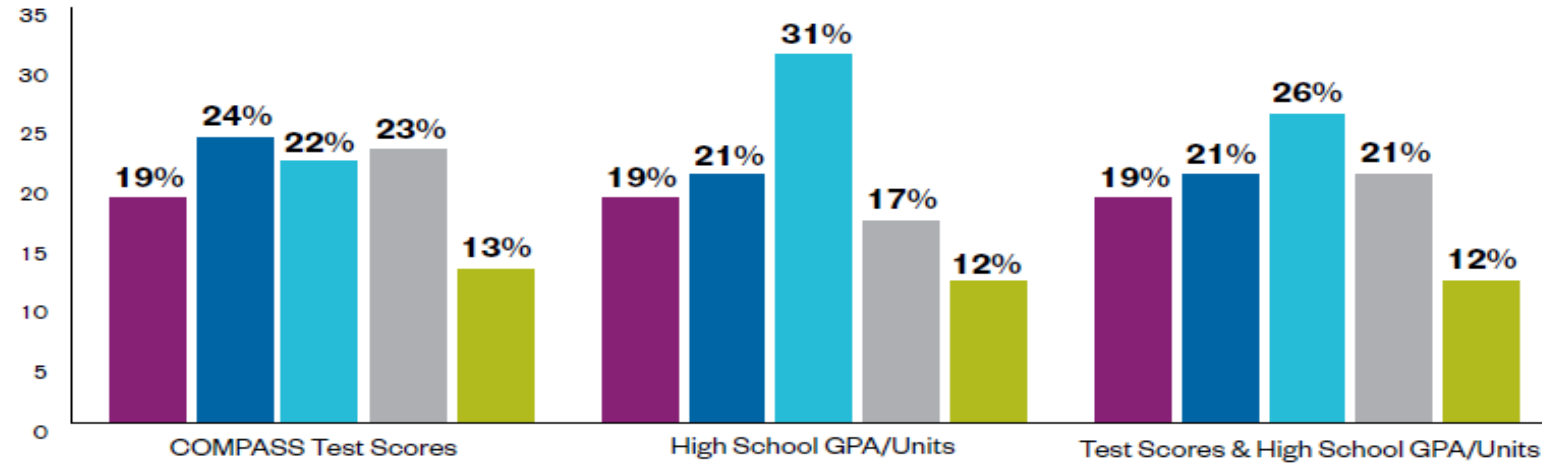
“...in the urban system, using high school information alone would increase the rate at which Black students are assigned to English remediation and substantially decrease their representation in college English. One way to avoid differential impacts on subgroups would be to allow students to test out of remediation based on either test scores *or* high school achievement” (p. 3).

CCRC Scott-Clayton & Stacey (2015)¹⁰

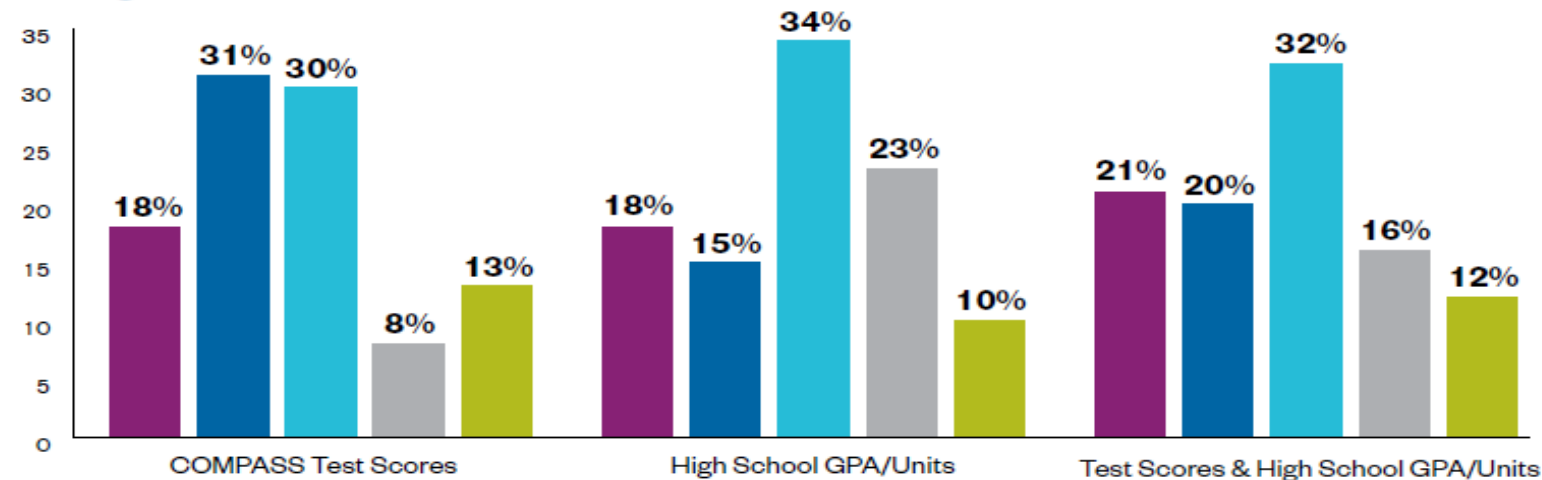
Predicted Racial/Ethnic Composition of Introductory College-Level Courses by Assessment Method (Urban Study)⁹

White Black Hispanic Asian Other/Unknown

Math



English



Unintended Consequences of Using HSGPA

2. More students overall will be placed into college-level courses, and there is no guarantee they will be successful there; in fact, research strongly suggests they will be less successful

Note: The reason why more students will be placed into college-level courses is because the cutoff is going to be lowered by institutions using an “or”

Ivy Tech Community College, Indiana Assessment Options (200K students)



We need to determine the level of your reading, writing and math skills in order to place you in the appropriate classes. We can measure this in several different ways, including previous college credit you've earned, SAT/PSAT or ACT scores, high school GPA or through an assessment tool called Accuplacer!

You can complete assessment in any of the following four ways:



Have you already taken the ACT, SAT or PSAT? Generally scores of 460 or higher on each section of the SAT, 26 in writing, 25 in reading and 24.5 in math or higher on each section of the PSAT*, or 17 in English, 18 in reading, 18 in math or higher on each section of the ACT can be accepted for your assessment if they were completed within the last four years. [Click here](#) for more information on the scores you need to complete the assessment requirement. **Send a copy of your ACT, SAT or PSAT scores to the address listed below.** **PSAT scores based on tests taken 2015 and beyond. Older test scores may also be accepted. [Click here](#) for older PSAT score ranges.*



Generally, a high school cumulative GPA of 2.6 or higher on a 4.0 scale will meet the assessment requirement if this was your final GPA at the time of graduation and if you completed high school within the last four years. You must have graduated with a Core 40, Technical Honors, or Academic Honors diploma or equivalent. High school seniors who have not yet graduated can use the cumulative GPA after six high school semesters have been completed. **Send a copy of your high school transcripts to the address listed below.**



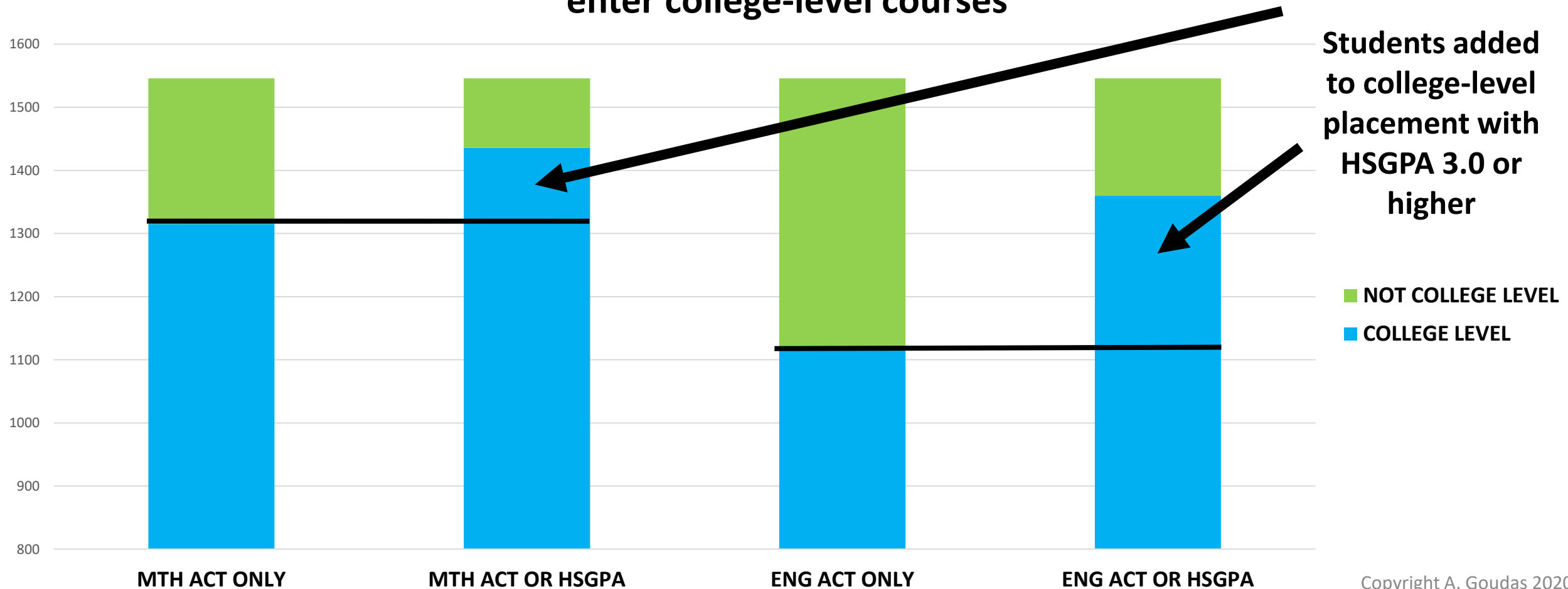
Have you already earned college credits or an Associate degree at another college or university? If so, see below for information on where to submit your college transcripts. General education courses taken at another regionally accredited institution, with a grade of "C-" or higher, may be used to complete the assessment requirement. **Send a copy of your transcripts to the address listed below. Please note, that if you would like to have your transcripts evaluated for transfer credit also, once you are admitted you will need to submit an official copy to your regional Registrar's office for evaluation.**



If you do not have previous college credit, an ACT, SAT or PSAT score, or a cumulative high school GPA that satisfies the assessment requirement, you will need to take the Accuplacer skills assessment. Your scores on the Accuplacer determine which writing, reading and math classes you'll take first. You must meet [certain scores](#) in order to place into college-level classes. The Accuplacer is free, and after the initial assessment in reading, writing and math, you may retest two additional times per year free of charge to try and increase your score. Your score will be accepted up to four years after you take the assessment. To prepare for the Accuplacer assessment, please [click here](#). To schedule an appointment to take the Accuplacer, scroll down and click on your campus below.

Conceptualizing How Adding “or” Would Affect Placement for Students with HSGPA

If using ACT®, Accuplacer®, **or** HSGPA, more students will automatically enter college-level courses



IHE “When You’re Not Ready” (2015)₇

Miami-Dade College

Developmental Education Enrollment			
	Math	Writing	Reading
2012-13 to 2014-15	-42%	-44%	-46%
College-level Enrollment	Math	English	
2012-13 to 2014-15	+30%	+10%	
Pass Rates	Math	English	
2012-13	55.7%	74%	
2014-15	46.8%	70.3%	

Unintended Consequences of Using HSGPA

3. When students are placed into remediation using a metric (HSGPA) that combines cognitive and noncognitive aspects, that means we must remediate for both; while many remedial courses do try to address noncognitive factors, many do not; what should we do instead? Actual “Developmental Education” addresses this problem

Unintended Consequences of Using HSGPA

4. Due to some colleges' admissions processes, some students who will qualify for college-level courses will not end up taking those courses because their Accuplacer printout will allow them to register before their HSGPA placement information is submitted; we should guarantee students will turn in HSGPA, test, and then wait for placement decision

Unintended Consequences of Using HSGPA

5. Additional staffing and time will be needed for receiving and entering official HSGPA transcript information, especially if HSGPA is required; then additional staffing and time will be needed for making students aware of a different placement than their Accuplacer score if they enroll out of order

Unintended Consequences of Using HSGPA

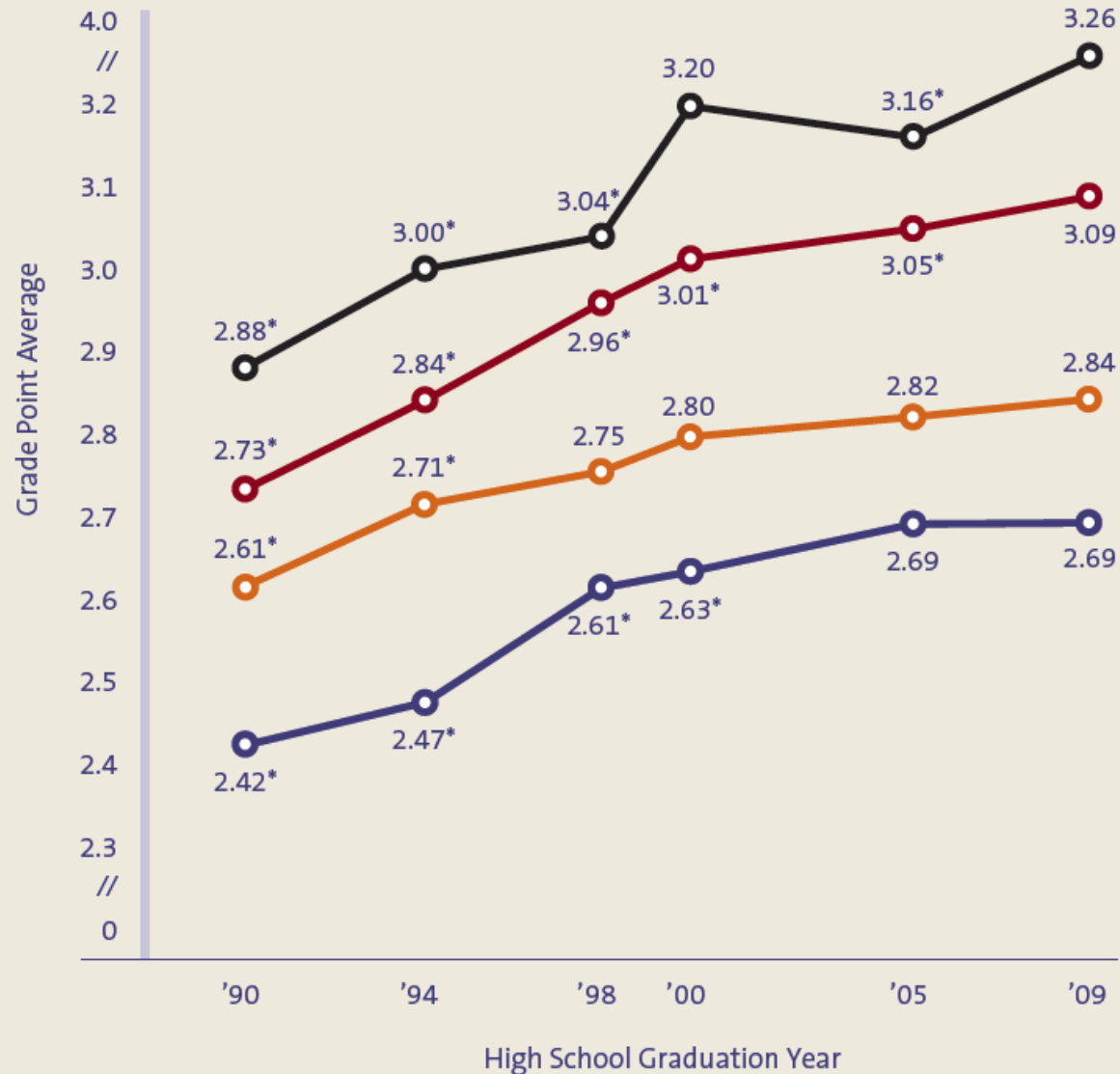
6. Research shows that 10% of all FTIACS do not have HSGPA, another 20-30% of our FTIACS are non-traditional, and another 10-20% may not have access to or cannot get HSGPA (and as shown before, HSGPA only works well with ages 18-19)¹³
 - Only ~50-70% of community college students would actually be able to submit their HSGPA^{9,15,26}

Unintended Consequences of Using HSGPA

- The two CCRC foundational studies which have been used to promote the current trend in using HSGPA (Scott-Clayton, 2012; Belfield & Crosta, 2012)^{9,15} highlight the fact that approximately 50% of their samples did not have any HSGPA to provide
- Therefore, who exactly would benefit from HSGPA placement?
- Will this simply benefit higher SES students?

USDOE NAEP Average HSGPA Data (2011)₈

FIGURE 30. Trend in average GPAs, by race/ethnicity: 1990–2009



White
Black
Hispanic
Asian/Pacific Islander

* Significantly different ($p < .05$) from 2009.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, High School Transcript Study (HSTS), various years, 1990–2009.

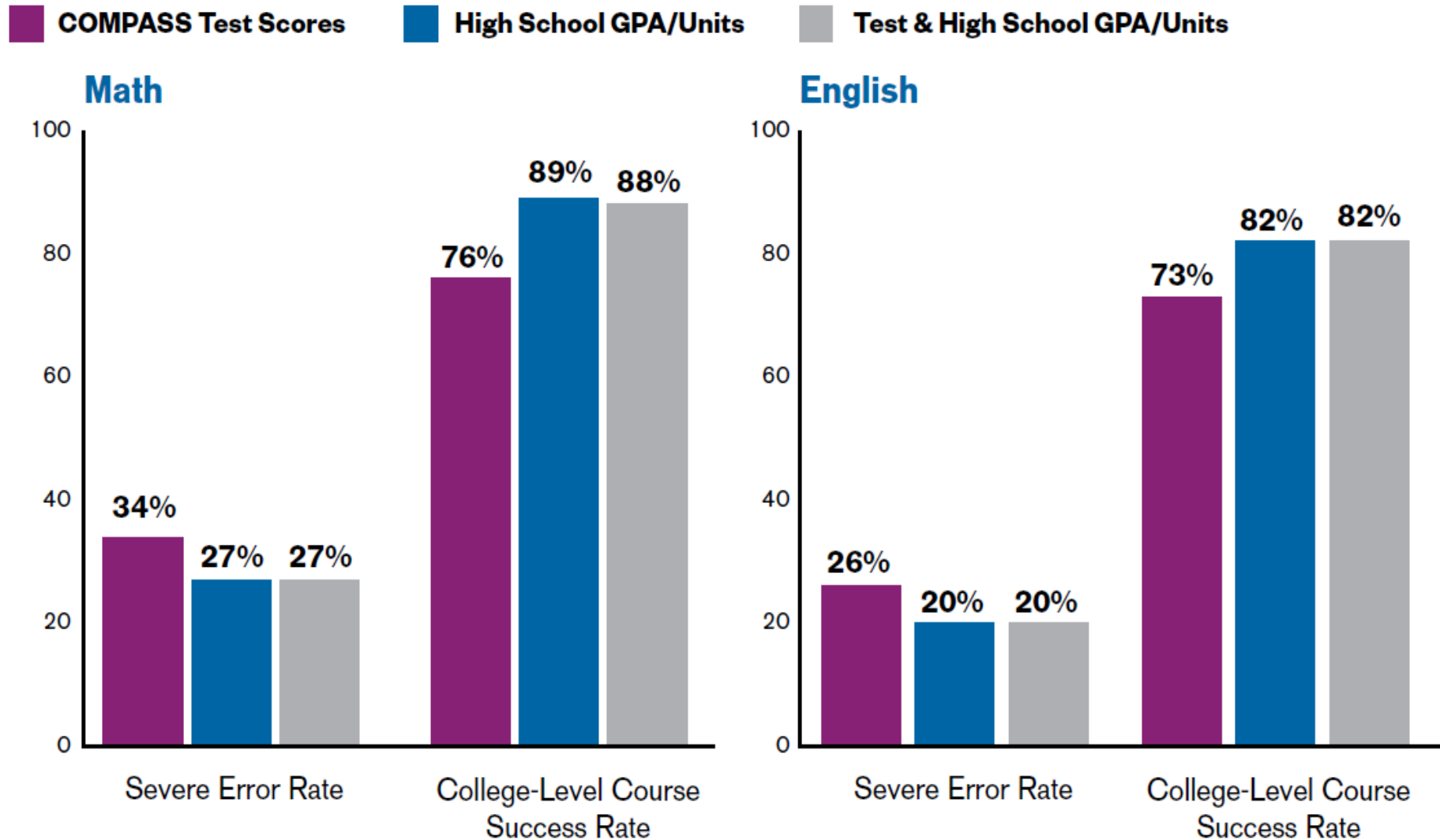


Unintended Consequences of Using HSGPA

7. We cannot guarantee the results from the CCRC research will be replicated; their results are based on actual mixed measures of HSGPA and tests (and other measures) combined; their predictions on HSGPA are theoretical and based only on students who placed into college-level courses

CCRC Belfield (2014)¹¹

Predicted Rates of Severe Placement Errors and College-Level Course Success by Assessment Method (Statewide Study)⁷



“Multiple Measures” Not a New Idea

Noble et al. (2003)¹⁷ (as cited in Scott-Clayton, 2012)¹⁵:

“Using multiple measures to determine students' preparedness for college significantly increases placement accuracy (ACT, 1997; Gordon, 1999; Roueche & Roueche, 1999). For example, test scores and high school grades may be used jointly to identify students who are ready for college-level work” (p. 302).

Even “Mixed Measure” Shows Limited Results

- CCRC research finding using HSGPA and amount of high school courses taken (mixed measure):

“Our calculations suggest that out of 100 students tested, 4 to 8 fewer students would be severely misplaced, representing up to a 30 percent reduction in severe errors compared with test-based placements” (Belfield, 2014, p. 2).¹¹

Part 2:

Multiple measures research in Upstate NY, an RCT

Lessons from Actual Mixed Measures Research

- CCRC's Barnett et al. (2018)²⁶ ran an RCT using mixed measures in five SUNY 2-year colleges
- CAPR (a related CCRC organization) published preliminary results about how the treatment affected enrollment and completion of college-level math/English
- There are several important takeaways from this study:

Lessons from Actual Mixed Measures Research

- Many students did not have HSGPA: It is important to note that they did NOT use HSGPA alone for placement; in fact, **60%** of students in the five 2-year colleges in the study *had missing HSGPA data* (p. 64)
- The two CCRC foundational studies which have been used to promote the current trend in using HSGPA (Scott-Clayton, 2012; Belfield & Crosta, 2012)^{9,15} highlight the fact that approximately 50% of their samples did not have any HSGPA to analyze

Lessons from Actual Mixed Measures Research

- What happens when students do not have access to their HSGPA?
- How is this harmful for those who cannot access their HSGPA and submit it to an institution?
- What should a two-year institution do about this?
- Do they have a responsibility to assist students in obtaining records?

Lessons from Actual Mixed Measures Research

- Mixed measures costs a lot; CAPR also stated it was much more complex than they anticipated
- It cost \$110 per student in initial costs and \$40 per student in ongoing costs per year (Barnett et al., 2018, p. iv)²⁶; it was \$110,000 average per institution start-up cost
- Cost is a factor that many institutions are not willing negotiate; typically there is little funding
- Barnett et al. (2018) will help when requesting funding

Lessons from Actual Mixed Measures Research

- Third, several colleges already had their own placement tests, which CAPR's researchers used as a part of the multiple measures RCT
- Therefore, if you create and utilize your own assessments, the CCRC would support using them in addition to other measures

Lessons from Actual Mixed Measures Research

- Finally, this study promotes mixed measures over HSGPA alone
- This is important because again, most researchers and institutions have been pushing the idea that HSGPA alone is far better than Accuplacer® alone
- The CCRC decided to invest a great deal of resources in an actual mixed measure model to see the effects; this means you can use this research to argue for holistic placement procedures that are well-funded

Lessons from Actual Mixed Measures Research

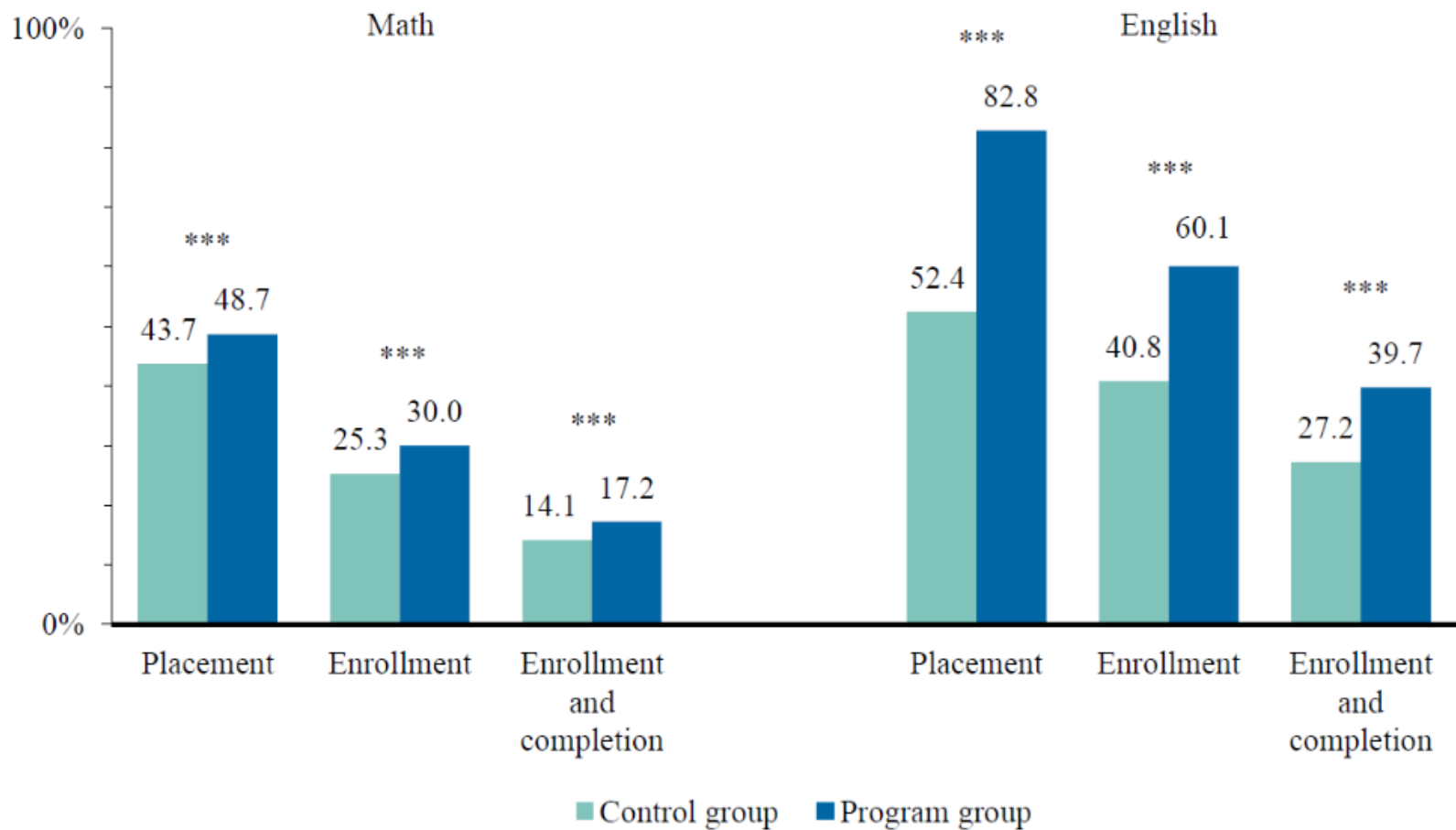
- Even actual mixed measures show limited results:

“In math, 14 percent of program group students placed higher than they would have under a test-only system (i.e., in college-level), while 7 percent placed lower (i.e., in remedial). In English, 41.5 percent placed higher, while 6.5 percent placed lower. Program group students were 3.1 and 12.5 percentage points more likely than control group students to both enroll in and complete (with a grade of C or higher) a college-level math or English course in the first term” (Barnett et al., 2018, p. 2).²⁶

Overall Results from Barnett et al. (2018)²⁶

Figure ES.2

College-Level Course Outcomes in Math and English



A Word of Caution About Biased Interpretations of Research

- One of the interest groups mentioned earlier is the Education Commission of the States (ECS)
- ECS's purported mission is laudable; they claim to work to support at-risk students; however, they are overtly biased against remediation
- ECS created a site entitled "Strong Start to Finish" (Strongstart.org)²⁴
- On it, they mischaracterize the recent multiple measures data by Barnett et al. (2018)²⁶

Bias in Interpreting Barnett et al. (2018)^{24,26}

← → ↻ <https://strongstart.org> ☆



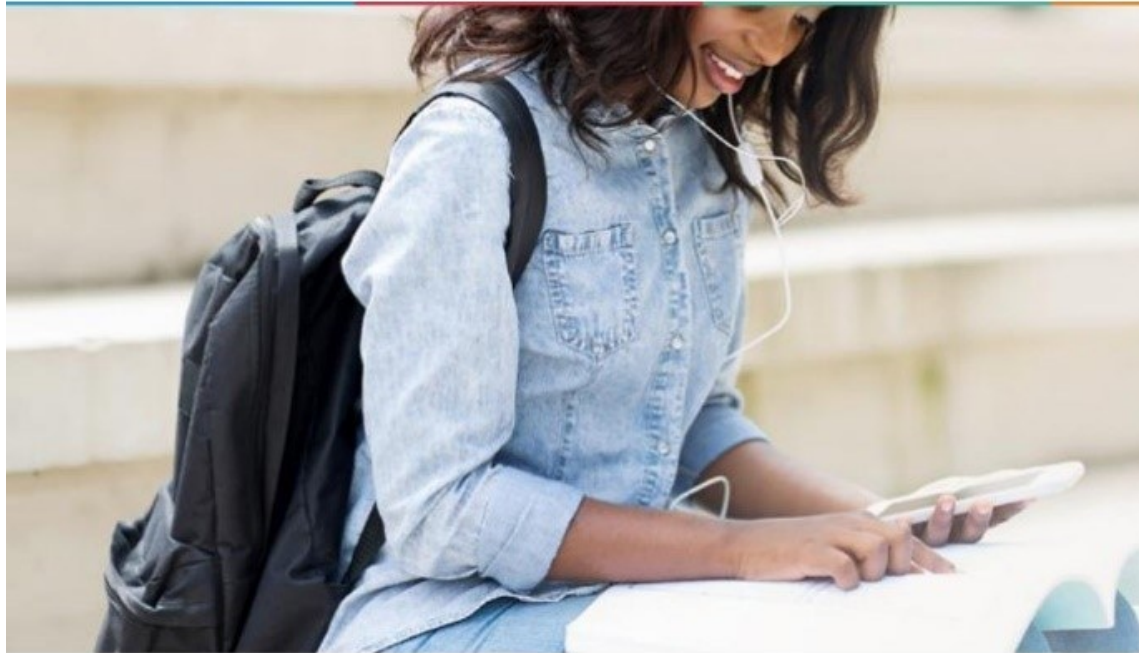
Why a Strong Start ▼

Get a Strong Start ▼

Support a Strong Start ▼

Media Hub ▼

Resource Library



RIGHT NOW, A FIRST-YEAR STUDENT SITS IN A COLLEGE CLASSROOM BEING ILL-SERVED BY DEVELOPMENTAL MATH.

Students must be set up for success in their first year at college. Developmental math and English courses can stand in the way of their path to a degree. Strong Start to Finish is shifting that path so that every student can start strong, to finish strong.

Why Change is Needed

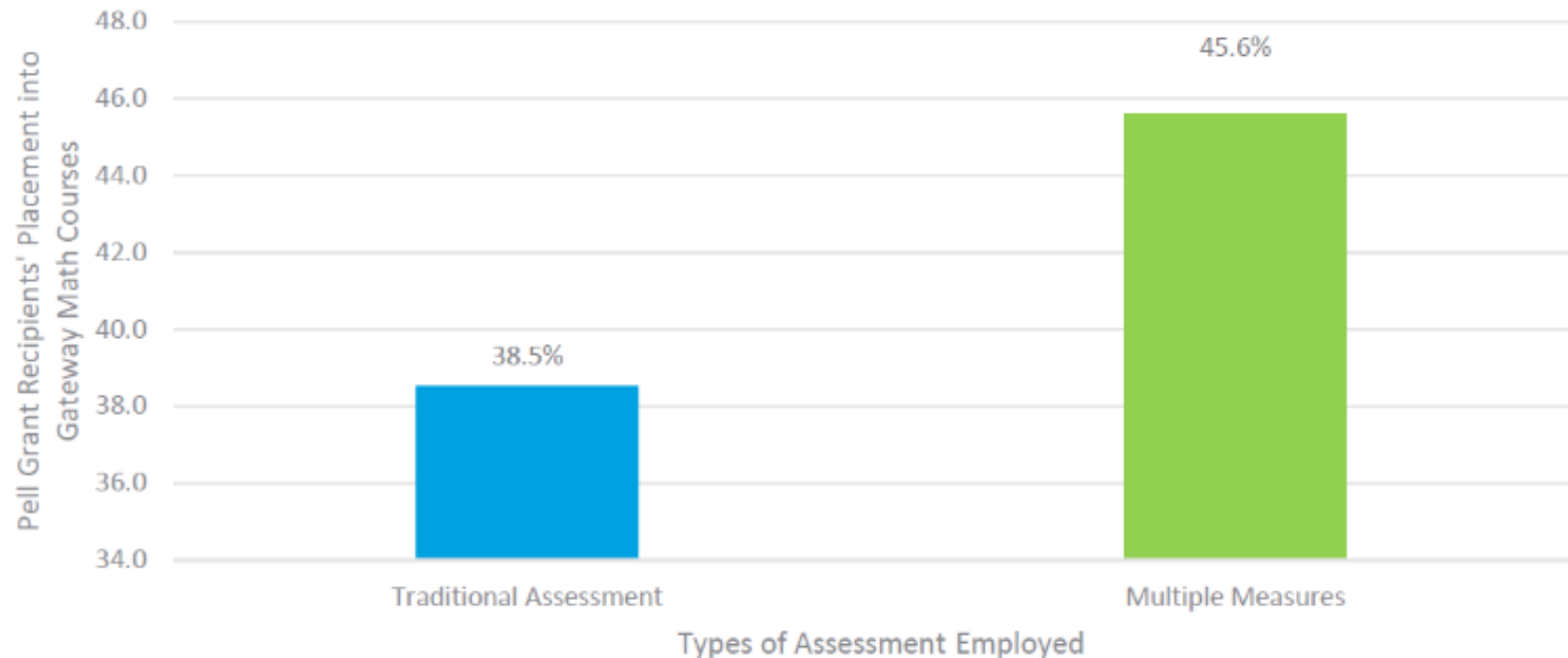
EVERY STUDENT DESERVES A STRONG START TO FINISH.
WE ARE HERE TO MAKE IT HAPPEN.

Bias in Interpreting Barnett et al. (2018)^{24,26}



Improved Gateway Course Placement Rates

Multiple Measures boosts math placement for Pell Grant recipients

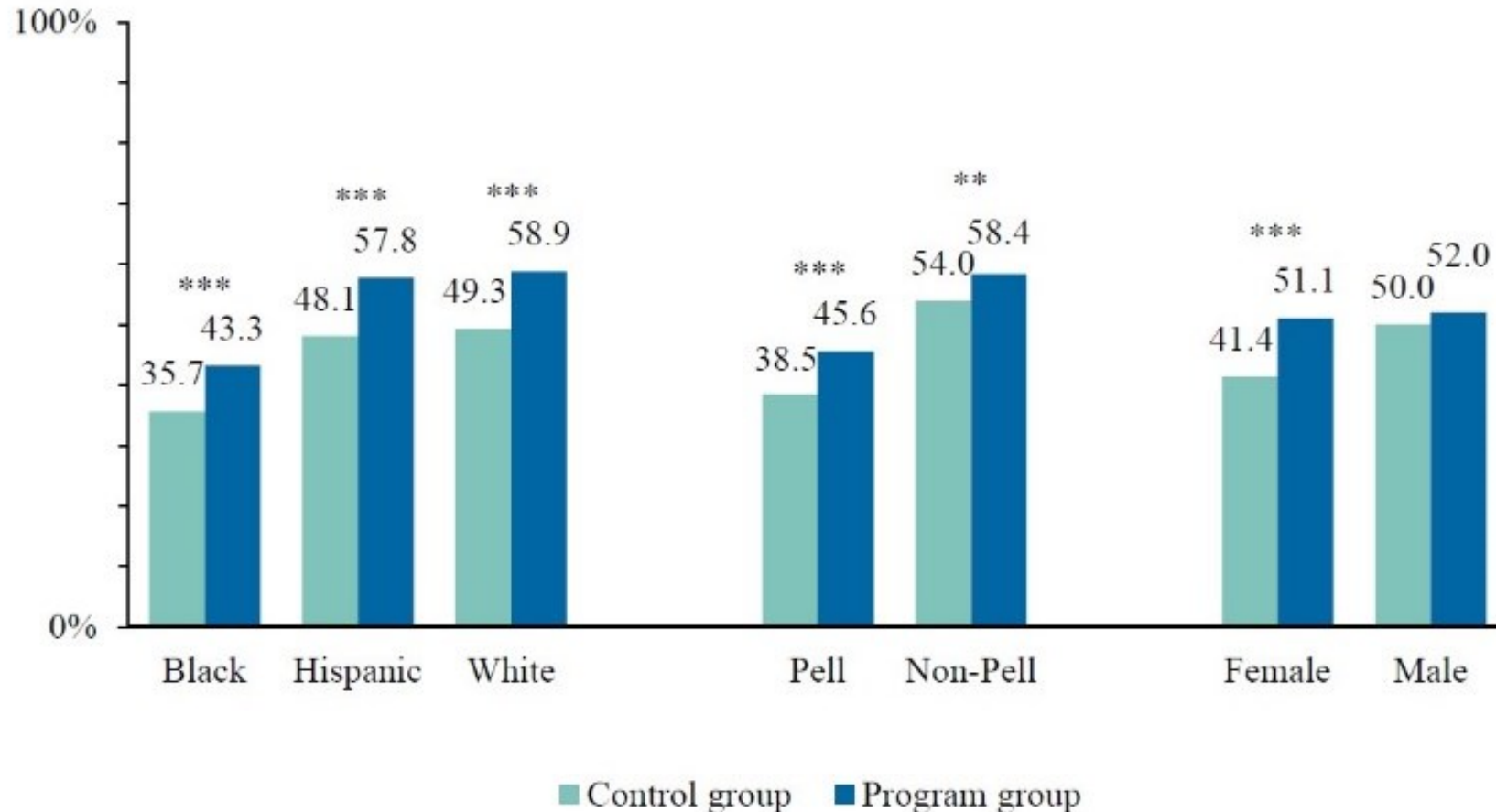


Source: Barnett, E., Bergman, P., Kopko, E., Reddy, V., Belfield, C., Roy, S., Cullinan, D. (2018). [Multiple Measures Placement Using Data Analytics: An Implementation and Early Impacts Report](#). Center for the Analysis of Postsecondary Readiness.

Bias in Interpreting Barnett et al. (2018)^{24,26}

Figure 4.6

Placement in College-Level Math (Among Enrolled Students)



*** $p < .01$, ** $p < .05$, * $p < .10$.

Bias in Interpreting Barnett et al. (2018)^{24,25}

- Contrary to what the ECS₂₄ research summary suggests, Barnett et al. (2018)²⁶ actually interpret these results in the opposite manner:
“...*gaps* in placement, enrollment, and completion rates in math between subgroups (other than gender subgroups) may not have been affected by the treatment. Stated another way, the statistically insignificant interactions suggest that the treatment may not have differentially impacted students by race/ethnicity or Pell Grant status” (p. 41)¹¹.

Part 3:

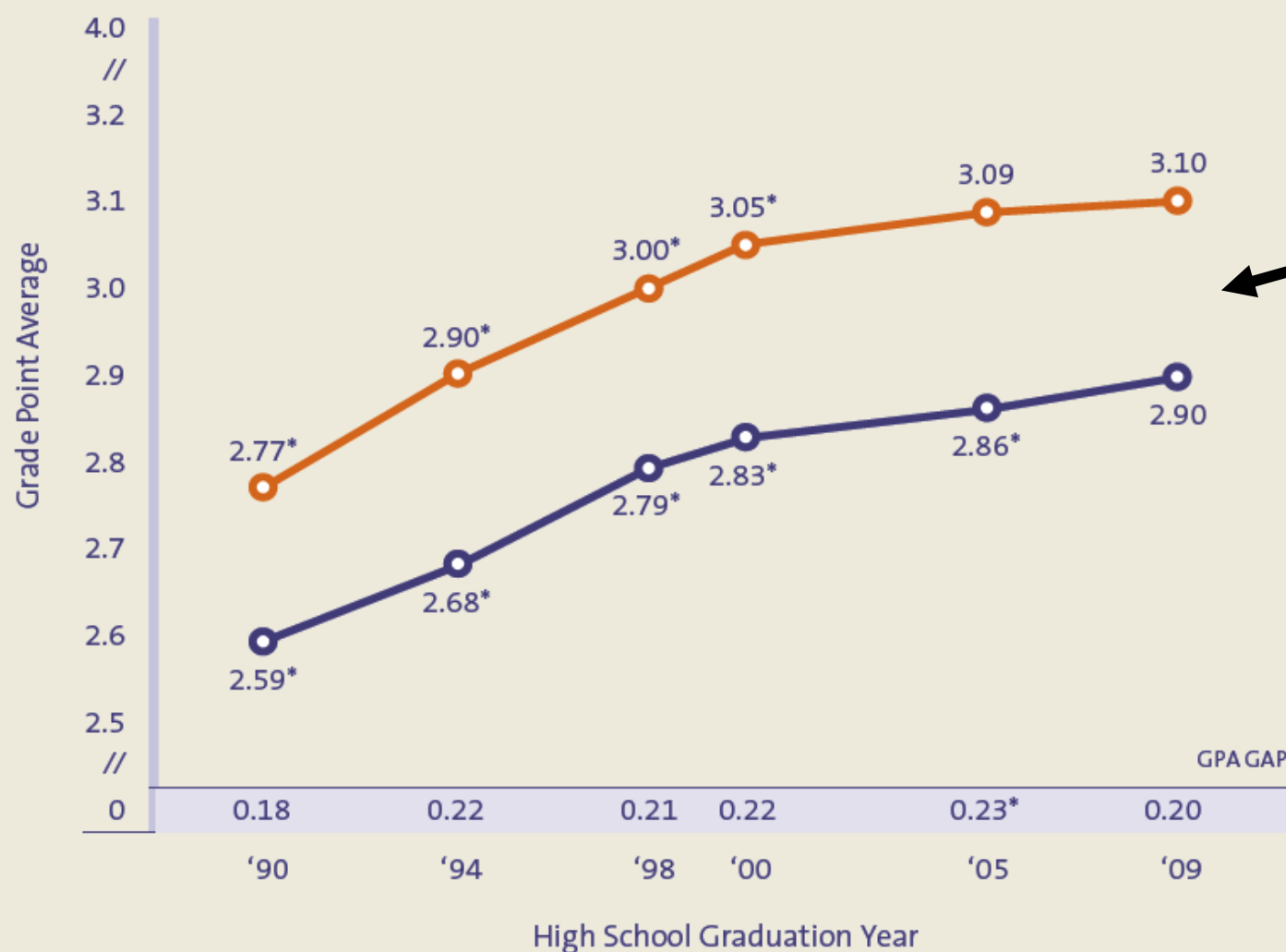
How to implement mixed measures practically at your institution

How to Employ Actual Mixed Measures

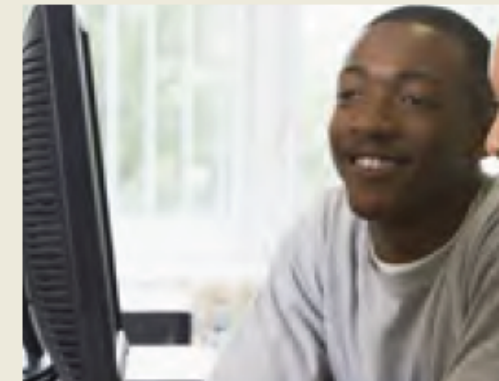
- First, if HSGPA is used as a single or mixed measure in addition to ACT/SAT or Accuplacer[®] scores, what should that cutoff be?
- Usually 50th percentile is used as cutoff; that means 3.0 or higher HSGPA
- Data from CCRC also suggest 3.0 and higher is proper (Scott-Clayton & Stacey, 2015, p. 5)₁₀

USDOE NAEP Average HSGPA Data (2011)₈

FIGURE 22. Trend in average grade point average and GPA gaps, by gender: 1990–2009



Average HSGPA for all students was 3.0 in 2009



How to Employ Actual Mixed Measures

- CCRC research and other research (ACT[®])₁₃ recommend using an actual mixed measure
- Most of the findings are based on mixed measures
- This means that HSGPA would be used *together* with Accuplacer[®] to make a more valid placement
- Unfortunately, CCRC has not provided a practical way to assess students with an actual *mixed measure*
- There are several practical ways to do this:

Using Accuplacer to Weight HSGPA and Test

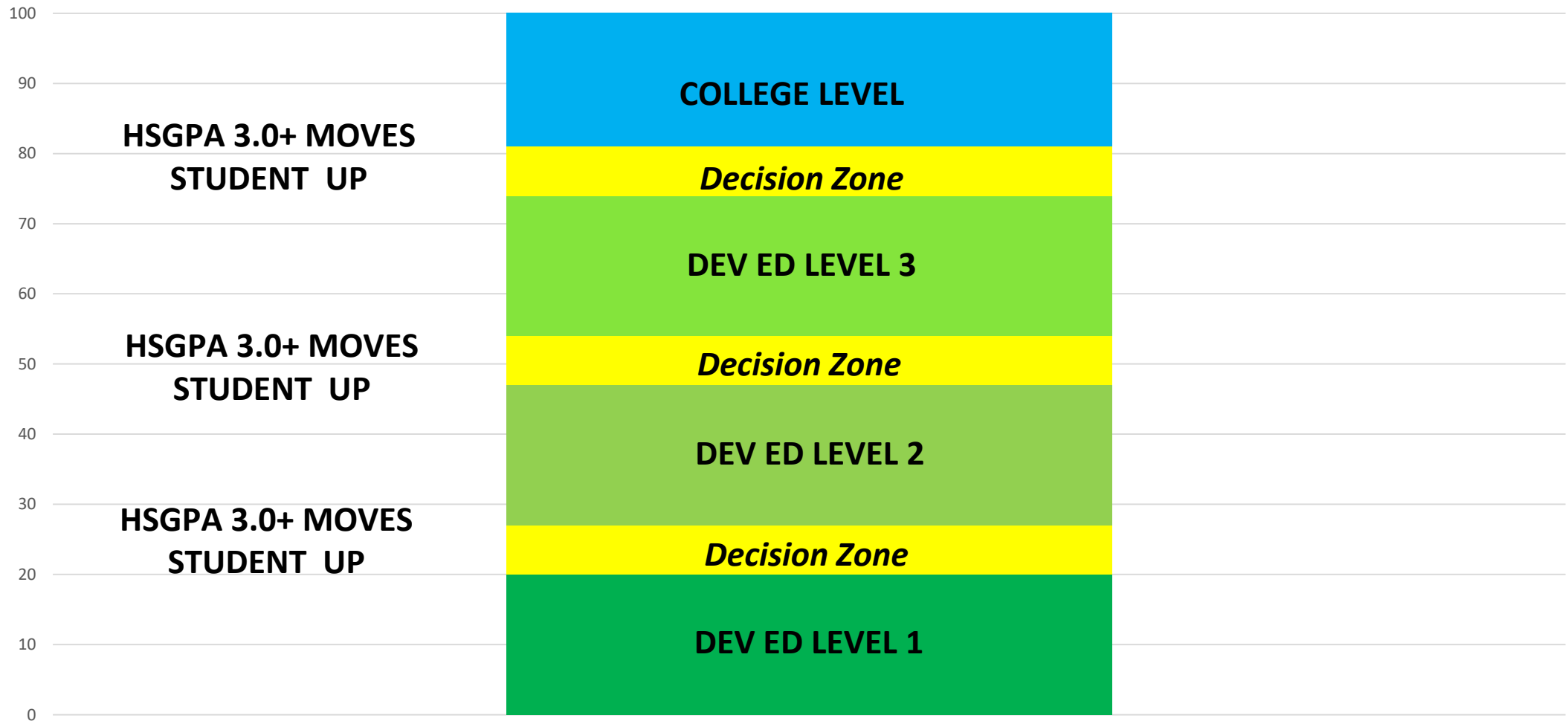
- After ACT[®]/SAT[®] cutoff, students take Accuplacer[®]
- Then Accuplacer[®] allows students to enter their HSGPA and then we can set it to “weight” their Accuplacer[®] score with their HSGPA
- You can use self-reported HSGPA or actual HSGPA
- An actual HSGPA requirement may be more difficult to implement this way because of limited transcript access for students, timing, and admissions office logistical problems (staffing, funding, etc.)

Using Decision Zones

- Institutions can use *decision zones* (also called *decision bands*, [Barnett & Reddy, 2017]₂₇ bubble placement, etc.) or to combine Accuplacer[®], ACT[®], SAT[®], and/or HSGPA
- The decision zone model uses predetermined cutoff points for a placement test such as Accuplacer[®] and sets a range beneath which a student who has HSGPA or another placement metric can move up a level if that metric is high enough

Using Decision Zones

Conceptualizing *Decision Zone* Placement



Using English and Math Waivers or Dept. Tests

- *Decision zone* placement model can be enhanced by waivers from math and English divisions or departments that have their own placement tests
- Barnett et al. (2018)₂₆ in the RCT in Upstate NY used locally developed placement tests in some of their placement algorithms
- In other words, another measure could be placement tests that institutions have developed and tested

Using Automatic and Free Accuplacer® Retests

- Students could be encouraged to retest the Accuplacer for free up to three times a year: *The Advance Program* is a highly successful program reducing misplacement by 25% at Delta
- Testing Center staff should recommend a free retest if student places into remedial writing, reading, or math
- Approximately 1/3rd of students will return for a retest, and 75% of them will move up a level
- They will perform equally well compared to others

Using a Brief Prep Session Before the Accuplacer®

- I ran an RCT study during which I talked to students for seven minutes before they took the Compass®
- Results showed statistically significant improvements on the writing portion, with small increases on the other two tests
- However, there are still benefits to talking to students before they test, such as informing them that the test is untimed but may take two hours, testing strategies, etc.

Using an Advising Session to Ask Important Noncognitive Assessment Questions

- As soon as an academic advisor asks a student questions such as these, “Do you work? Do you think your work will interfere with your ability to be successful as a full-time student? Have you considered part-time college?”, then that is a multiple measure
- Student affairs could construct a basic and standardized set of questions that could be asked during an admissions or advising session
- Let’s get into groups and come up with others

Group exercise
on questions on
noncognitives
to ask students

Advising Session Noncognitive Questions:

Please get in groups and make your own list...

- Do you work? If so, full-time or part-time?
- ?

A Note on Noncognitive Assessments

- The CCRC conducted a survey of all existing noncognitive assessments in the year 2016
- Kafka (2016)¹⁸ compiled a list of 21 assessment tools available for purchase or use for free
- Included in this list are such assessments as CCSSE, The Grit Scale, and LASSI
- However, there is extremely limited evidence these tests are effective (West, 2014)³⁰

Multiple Measures: What is Truly Best for Placement?

- Mixed *multiple measures* are best for placement:
 - ACT[®]/SAT[®]
 - Accuplacer[®] (free retests encouraged)
 - HSGPA has a role (I argue for more limited role)
 - Advising session (right after test)
 - Noncognitive questions in advising session
 - Short essay assessment for English?
 - Math department test?
 - Combine when possible

Multiple Measures: What is Truly Best for Placement?

- A holistic intake system would be ideal:
 - Two days a week starting at 9 or 10 a.m.
 - All accepted students can arrive any time
 - Welcome and placement test prep session
 - After placement test, advising session immediately; collect HSGPA and other data before or after
 - Advisors can ask noncognitive questions (work, etc.)
 - Perhaps they can even register that day
 - Track students throughout placement into coursework

Multiple Measures: What is Truly Best for Placement?

- All this requires an investment of money
- Staffing increases are essentially required; the CCRC's book on guided pathways argued for substantial increases in counseling and advising staff numbers and monies (Bailey et al., 2015)²⁹
- However, thoughtful, well-funded, and sustained holistic placement will lead to better placement and higher student success rates in various outcomes

Thank you!

Keep up the good work!

References below and more reading available:

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Follow me on **@ccollegedata**

(Sources and links on next page)

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