

# Using High School Achievement Information to Improve Placement Accuracy in Community Colleges

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*Slides available at: [bit.ly/capr\\_ashe16](http://bit.ly/capr_ashe16)*

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## Agenda for Presentation



- Background and Prior Research
- CAPR: Research on Alternative Placement Systems (RAPS)
- RAPS Initial Data
- Implementation Research Sneak Peak

# Background and Prior Research

## Prior CCRC Research Studies

- Scott-Clayton, J. (2012). *Do High-Stakes Placement Exams Predict College Success?* (Working Paper No. 41). New York, NY: Community College Research Center.
- Belfield, C., & Crosta, P. M. (2012). *Predicting Success in College: The Importance of Placement Tests and High School Transcripts* (No. CCRC Working Paper No. 42). New York, NY: Community College Research Center.
- Scott-Clayton, J., Crosta, P. M., & Belfield, C. R. (2014). Improving the Targeting of Treatment: Evidence From College Remediation. *Educational Evaluation and Policy Analysis*, 36(3), 371–393.

## Under-placement and Over-placement

		Placement According to Exam	
		Developmental	College Level
Student Ability	Developmental		<i>Over-placed</i>
	College Level	<i>Under-placed</i>	

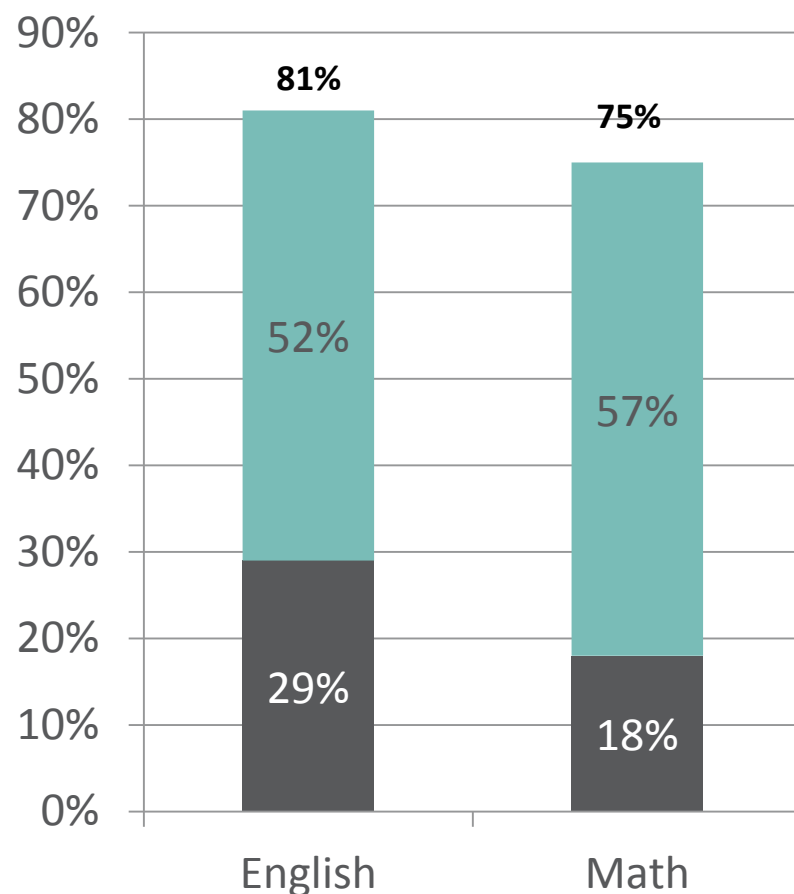
# Scott-Clayton (2012) – Model R<sup>2</sup> Statistics

<b>Sample restricted to students with high school background data</b>				
	<b>Placement Test Scores Only</b>	<b>High School GPA/Units Only</b>	<b>Placement Test Scores PLUS HS GPA/Units</b>	<b>Test Scores, HS GPA/Units, PLUS Local HS, Years Since HS</b>
<b>Panel A. R-Squared Statistics (Proportion of Variation Explained)</b>				
<b>Math</b>				
Earned B or higher in CL <sup>a</sup>	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 <sup>b</sup>	0.129	0.119	0.183	0.204
<b>English</b>				
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

Scott-Clayton, J. (2012). *Do High-Stakes Placement Exams Predict College Success?* (Working Paper No. 41). New York, NY: Community College Research Center.

## Many more students could succeed in college level courses (Belfield & Crosta, 2012)

- Many students assigned to developmental education using COMPASS could have gotten a B or better in a college-level class:
  - 1/3 of students – English
  - 1/4 of students – Math



## Error Rates

		LUCCS 1	SWCCS 1	SWCCS 2
Math	Over-placement rate	5.3%	5.8%	12.3%
	Under-placement rate	18.5%	28.4%	14.3%
	Total Error Rate	23.9%	34.2%	26.6%
English	Over-placement rate	4.5%	8.8%	5.6%
	Under-placement rate	28.9%	17.3%	27.8%
	Total Error Rate	33.4%	26.2%	33.5%

<sup>a</sup> Scott-Clayton, J., Crosta, P. M., & Belfield, C. R. (2014). Improving the Targeting of Treatment: Evidence From College Remediation. *Educational Evaluation and Policy Analysis*, 36(3), 371–393.



# CAPR: Research on Alternative Placement Systems (RAPS)

## RAPS

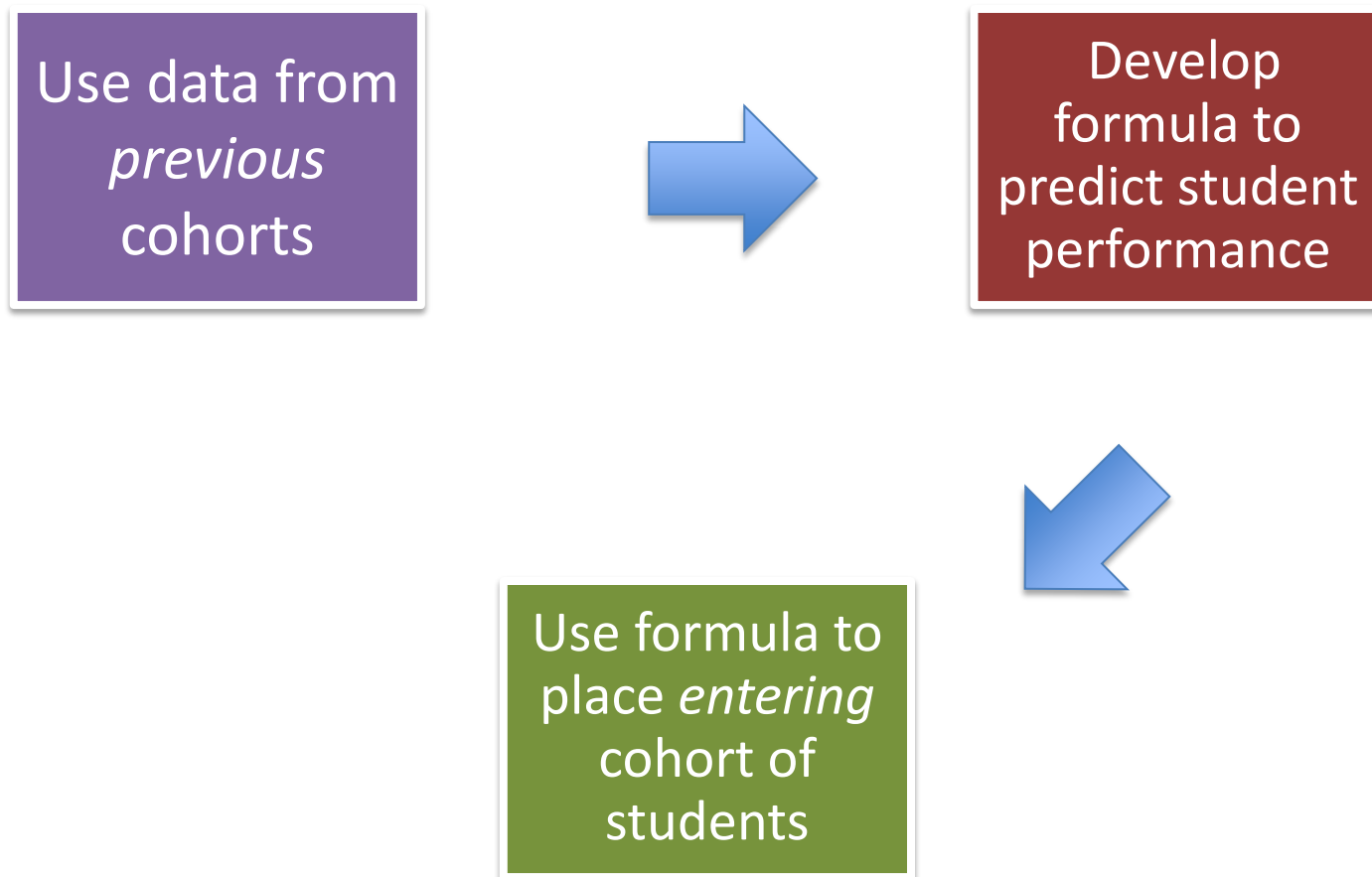
1. 7 SUNY Community Colleges.
2. Each works with CAPR team to develop an alternative placement method using an algorithm.
3. Students are randomly assigned to be placed using either the existing placement method or the algorithm.
4. We look for differences in student outcomes based on placement method.
5. Monitor implementation of study and transition to MM system.



## RAPS – Study Timeline

- Five year study – July, 2014 – June 2019
- Years 1-2
  - Analysis of historical data
  - Create requisite systems on campuses
- **Years 3-4**
  - **Randomly assign students to be placed using algorithm or pre-existing system.**
  - **3 Semesters – Fall 2016, Spring 2017, Fall 2017**
- Years 4-5
  - Collect and analyze outcomes data.
  - Final data transfer from colleges – July, 2018

## How Does the Algorithm Work?



## Creating the algorithm

- Three cohorts of students
- Select students who:
  - Took a placement test
  - Took a college-level course first
- Use their outcome in the initial college-level course to gauge how well certain factors predict success (Passing the course with a C or better)
- Establish minimum acceptable probability for success in college-level course

# Explaining variation in outcomes.

- The basic four models
  - GPA only
  - ACCUPLACER test scores only
  - GPA + ACCUPLACER
  - GPA + ACCUPLACER + other HS information
- Additional complexity
  - Interaction terms
  - Higher order terms

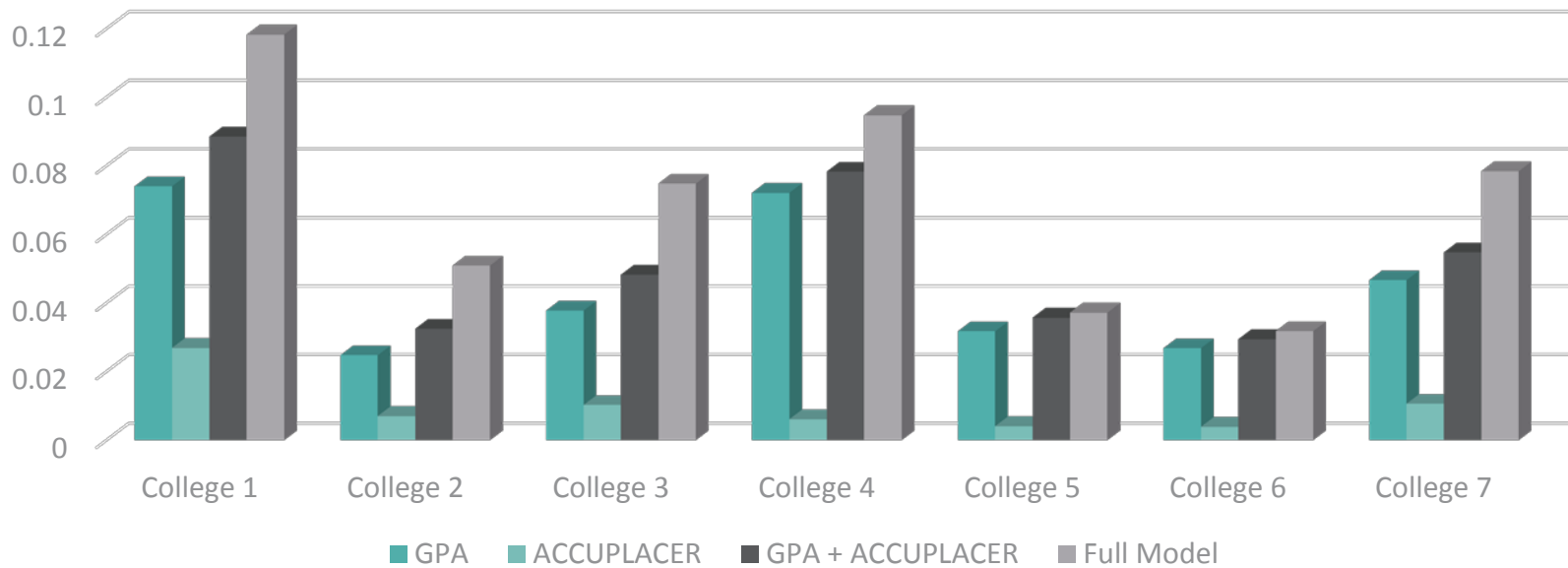
## Missing Data

- Include dummy indicators for missing data element.
- Test interaction terms between missing HS GPA and test scores.



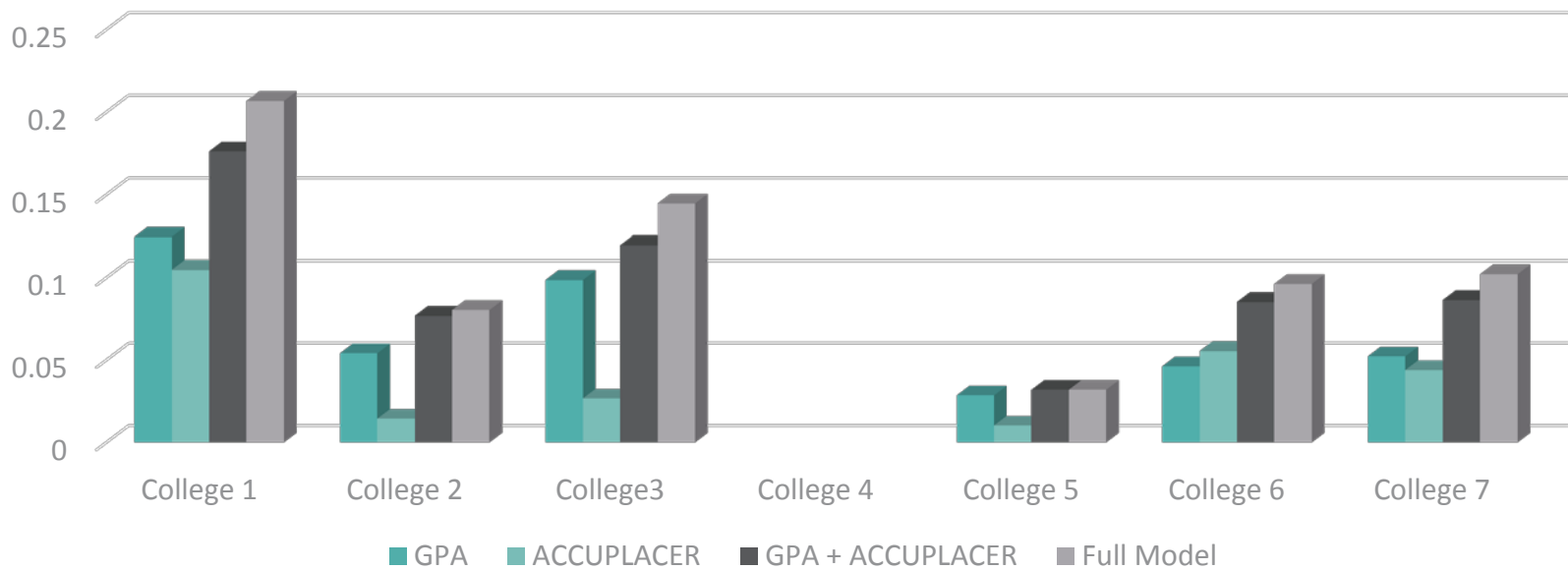
# Model R-Squared Statistics English

R-Squared Statistics – Graphical Representation



# Model R-Squared Statistics Math

R-Squared Statistics – Graphical Representation



# Data Elements

Data Element	Impact
High School GPA	+
Time since high school completion	+
Diploma type (standard diploma vs. GED)	+
High School of Record	
Other Test Data (e.g. Regents, SAT/ACT, etc.)	
Placement test scores	(+)
Indicators for missing data	+/-

Key: + significant positive predictor

(+) somewhat positive predictor

+/- can be positive or negative predictor

# Severe Error Rates

## Math

	1	2	3	4	5	6	7
Over-placed	24%	6%	12%	20%	11%	16%	13%
Under-placed	8%	45%	29%	22%	36%	19%	35%
Severe Error Rate	32%	50%	41%	42%	47%	34%	47%

# Severe Error Rates English

	1	2	3	4	5	6	7
Over-placed	12%	15%	14%	17%	8%	11%	17%
Under-placed	31%	30%	34%	25%	44%	40%	29%
Severe Error Rate	43%	45%	47%	42%	52%	51%	46%

# RAPS – Initial Data

## Outcomes of Interest

- Placement levels
- Outcomes in introductory college-level course
- Persistence/retention
- Credits earned
  
- Subgroup Analyses
  - Demographics
  - Differentially placed

# English

	Projections		Experimental	
	Prior Share in C.L. English	Projected placed into C.L. English using MM	Control Group	Program Group
College 1	47%	48%	25%	32%
College 2	60%	68%	56%	50%
College 3	28%	95%	35%	93%
College 4	50%	100%	26%	100%
College 5	38%	50%	57%	85%



# Math

	Projections		Experimental	
	Prior Share in C.L. Math	Projected placed into C.L. Math using MM	Control Group	Program Group
College 1	53%	52%	57%	62%
College 2	29%	39%	13%	21%
College 3	27%	43%	29%	38%
College 4	50%	74%	50%	86%
College 5	44%	40%	40%	32%

# Implementation research findings

## Implementation Study

- Visited sites in the late spring/early summer 2016
  - Interviews/Focus Groups
    - Members of Research Teams
    - Senior Administrators
    - Admissions
    - Testing
    - Counsellors/Advisors
    - IT
    - IR
- Site visits Round 2 in Spring 2017
  - Interviews and Focus Groups with same set of people *plus faculty*

## Implementation Research: Emerging Findings

- Many Stakeholders and parts of campus involved
  - Requires lots of coordination.
  - Venue to tackle more than just Multiple Measures
- Obstacles
  - Complexity of Systems
  - Skepticism and Buy-In

## Multiple Measures Reform Context

- Placement Reforms
  - Exemption policies
  - Changes to scoring procedures
- Curricular reforms
  - Co-requisite courses
  - Flipped classrooms

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