The California Acceleration Project supports California’s 112 community colleges to redesign their English and Math curricula to increase student completion:

- Workshops and presentations to 100+ CA colleges
- Professional development for faculty from 42 colleges to offer new accelerated English & math courses
- Extensive web resources to support colleges at all phases of redesigning remedial curricula

http://cap.3csn.org

Funding provided by the state Chancellor’s Office Basic Skills Initiative, Walter S. Johnson Foundation, LearningWorks, & Community College Research Center (CCRC)

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HIGH ATTRITION IN REMEDIATION:
CALIFORNIA-WIDE DATA

The lower a student begins in remedial sequences, the lesser their likelihood of completing college-level courses:

• Just 16% of students who begin 3 or more levels below college English complete college English in 3 years.

• Just 6% of students who begin 3 or more levels below college math complete college math in 3 years.

• Students of color are disproportionately placed into these lower levels. More than 50% of Black and Latino community college students are placed 3+ levels below college math.
Students placed 2 levels below college English/Math face 6 “exit points” where they fall away:

- Do they enroll in the first course?
- If they enroll, do they pass the first course?
- If they pass, do they enroll in the next course?
- If they enroll, do they pass the second course?
- If they pass, do they enroll in the college-level course?
- If they enroll, do they pass the college-level course?

Students placed 3 levels down face 8 exit points.
ILLUSTRATION: CHABOT COLLEGE

Students beginning two levels below College English:

- Do they enroll in the first course? ??%
- If they enroll, do they pass the first course? 66%
- If they pass, do they enroll in the next course? 93%
- If they enroll, do they pass the second course? 75%
- If they pass, do they enroll in the college-level course? 91%
- If they enroll, do they pass the college-level course? 78%

\[(0.66)(0.93)(0.75)(0.91)(0.78) = 33\%\]

Fall 2006 Cohort. Students tracked from their first developmental English enrollment and followed for all subsequent English enrollments for 3 years. Pass rates include students passing on first or repeated attempts within timeframe. Basic Skills Cohort Tracker, DataMart.

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A THOUGHT EXPERIMENT…
IF MORE STUDENTS PASSED THE FIRST COURSE,

How many would complete college level?

\[(0.66)(0.93)(0.75)(0.91)(0.78) = 33\%\]

If 75\% passed the first course…

37\%

If 80\% passed the first course…

40\%

If 90\% passed the first course…

45\%

What if 90\% passed and persisted at each point?

59\%
BOTTOM LINE

Improving our results within the existing multi-level system will never be enough.

We need to fundamentally restructure our approach to under-prepared students and eliminate the exit points where we lose them.
Student completion of college English is significantly higher in accelerated models of remediation:

• Co-requisite models enroll “remedial” students into college-level courses and provide additional time and support to help them succeed.

• One-semester pre-requisite models provide a single well-designed semester of preparation to students with any placement score.

Shortening the remedial pathway by a semester is correlated with 20+ percentage points higher completion of college English in established models.
Community College of Baltimore County

Upper-level remedial students enroll in a regular college English course, plus a small support class with the same teacher.

Completion of College English

<table>
<thead>
<tr>
<th></th>
<th>Traditional remedial sequence</th>
<th>Accelerated Learning Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCBC</td>
<td>40%</td>
<td>75%</td>
</tr>
</tbody>
</table>

ONE-SEMESTER ACCELERATED PRE-REQUISITE TO COLLEGE ENGLISH

Chabot Las Positas Community College District
Integrated reading and writing course open to students with any placement score below college-level; alternative to two-semester remedial sequence.

Completion of College English

<table>
<thead>
<tr>
<th></th>
<th>2-semester remedial path</th>
<th>Accelerated course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chabot College</td>
<td>28%-34%</td>
<td>52%-57%</td>
</tr>
<tr>
<td>Las Positas College</td>
<td>35%-48%</td>
<td>67%-68%</td>
</tr>
</tbody>
</table>


http://datamart.cccco.edu/Outcomes/BasicSkills_Cohort_Tracker.aspx
At CCBC, Chabot, & Las Positas, accelerated models...

- Are implemented at large scale, serving majority of students below college level
- Serve students with wide range of placement scores
- Give “remedial” students same tasks as “college-level” students, but with more time and support

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ACCELERATED REMEDIATION IN MATH

Paradigm Shift: Math Pathways
Remediation not a repeat of K-12 mathematics through Algebra II. Instead, support tailored to the student’s intended program of study or meta-major.

• Intensive algebra preparation for students pursuing STEM, other calculus-based majors

• Students in other majors enroll in college-level Statistics or Liberal Arts Math, with co-requisite or accelerated pre-requisite support

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WHY PATHWAY REDESIGN: MISALIGNMENT BETWEEN ALGEBRA & STATISTICS

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- Chapter 1: Some Basic Concepts of Arithmetic and Algebra
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  - 1.3 Integers, Addition and Subtraction (25)
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  - 1.5 Use of Properties (21)

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  - 2.4 Exponents (22)
  - 2.5 Translating from English to Algebra (22)

- Chapter 3: Equations, Inequalities, and Problem Solving
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  - 3.2 Equations and Problem Solving (21)
  - 3.3 More on Solving Equations and Problem Solving (23)
  - 3.4 Equations Involving Parentheses and Fractional Formulas (2)
  - 3.5 Inequalities (21)
  - 3.6 Inequalities, Compound Inequalities, and Problem Solving (23)

- Chapter 4: Formulas and Problem Solving
  - 4.1 Formulas and Problem Solving (20)
  - 4.2 More on Percents and Problem Solving (20)
  - 4.3 Formulas: Geometric and Others (21)
  - 4.4 Problem Solving (20)
  - 4.5 More About Problem Solving (23)

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  - 5.1 Cartesian Coordinate System (22)
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  - 5.3 Slope of a Line (23)
  - 5.4 Writing Equations of Lines (21)
  - 5.5 Systems of Two Linear Equations (25)
  - 5.6 Elimination-by-Addition Method (20)
  - 5.7 Graphing Linear Inequalities (19)

- Chapter 6: Exponents and Radicals
  - 6.1 Exponents and Scientific Notation Revisited (20)
  - 6.2 Roots and Radicals (20)
  - 6.3 Simplifying and Combining Radicals (21)
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- Chapter 7: Factoring
  - 7.1 Factoring by Using the Distributive Property (21)
  - 7.2 Factoring the Difference of Two Squares (22)
  - 7.3 Factoring Trinomials To the Form ax^2 + bx + c (22)
  - 7.4 Factoring Trinomials of the Form ax^2 + bx + c (22)
  - 7.5 Factoring, Solving Equations, and Problem Solving (20)

- Chapter 8: Quadratic Equations and Inequalities
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  - 8.5 Quadratic and Other Nonlinear Inequalities (20)

- Chapter 9: Functions
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  - 9.2 Functions: Their Graphs and Applications (19)
  - 9.3 Graphing Made Easy Via Transformations (20)
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- Chapter 10: Exponential and Logarithmic Functions
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  - 10.2 Exponential and Logarithmic Functions (20)
  - 10.3 Exponential and Logarithmic Functions (20)
  - 10.4 Exponential and Logarithmic Functions (20)
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- Chapter 11: Systems of Equations: Matrices and Determinants
  - 11.1 Systems of Two Linear Equations: A Brief Review (20)
  - 11.2 Systems of Three Linear Equations in Three Variables (23)
  - 11.3 A Matrix Approach to Solving Systems (23)
  - 11.4 Determinants (23)
  - 11.5 Cramer’s Rule (22)
  - 11.6 Systems Involving Nonlinear Equations (20)
At CAP colleges piloting accelerated pre-statistics courses, student completion of gateway math courses is 2 to 4 times higher than in the traditional multi-semester algebra sequence.
Policy makers sometimes focus on cutting the lowest curricular levels and setting a “floor” for remediation. Yet, accelerated models show promise even for students who would likely fall below this floor:

- At Chabot and Las Positas, the lowest-scoring 5% of students pass the one-semester accelerated course at a rate of 48%, with better outcomes there than in the longer sequence.

- At Los Medanos, completion of college math among students enrolled in accelerated remediation is 4 times higher than students who follow the traditional 3-4 semester remedial sequence.
The accelerated English models discussed here focus on academic literacy development among student populations that are generally fluent in English – native speakers or more advanced ESL students.

An open question in the field:
How can accelerated models be adapted and scaled for English language instruction?
POLICY CAUTIONS
ALGEBRA AS STANDARD OF “COLLEGE READINESS”

There is a danger that efforts like the Common Core could block promising pathway reforms by rigidifying a single algebra-based standard of “readiness.”

• High schools must take care not to prematurely track students away from math-intensive fields.

• But at the college level, students choose pathways that include different quantitative requirements; remediation should be aligned with these requirements not the high school curriculum.

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POLICY CAUTIONS
PROFESSIONAL DEVELOPMENT FOR
FACULTY

The accelerated English and math curricula described here represent a significant break from more traditional remedial approaches and from many textbook/software products on the market.

To make the shift, teachers need sustained professional support to change what and how they are teaching.

Faculty benefit from collaborative networks for sharing classroom practices and curricula, like 3CSN, funded through California’s Basic Skills Initiative.

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