Evaluating the California Acceleration Project

Equity implications of increasing throughput via curricular redesign

Craig Hayward
Director of Research, Planning and Accreditation, Irvine Valley College & Senior Researcher, RP Group

Terrence Willett
Director of Research, Planning, and Knowledge Systems, Cabrillo College & Senior Researcher, RP Group
The California Acceleration Project

• All 112 community colleges have participated in CAP workshops and broad outreach
• As of fall 2014, there are 47 colleges offering English and Statistics pathways that:
  • Reduce students’ time in remediation by at least a semester
  • Align remediation with college-level requirements
  • Use high-challenge, high-support pedagogy
  • Make no changes to transfer-level course (only remediation is changed)
• Between 2011-12 and 2013-14, enrollment in CAP accelerated courses tripled, from 3,200 to 10,000 students
Evaluation Framework

• Problem
  • Low completion of transfer level English and math among basic skills students (“throughput”)

• Intervention
  • Shorten remedial sequence to “accelerate” progression to transfer level English and non-STEM math

• Hypothesis
  • Students in accelerated pathways complete the transfer-level gatekeeper course at a rate higher than comparable students who participate in the traditional sequence
Resources/Acknowledgements

• Funded by California Community College Success Network (3CSN) and the Walter S. Johnson Foundation
• Technical support from the California Community College Chancellor's Office (CCCCCO)
• Participation by CAP pilot colleges
Statewide progression of students from three levels below transfer to transfer-level math from fall 2010 through spring 2013.
Methods

- Accelerated students compared to traditional
- Equated on 13 variables including current level, non-subject GPA, ethnicity, EOPS, ESL, financial aid, disability, and prior successes
- Outcome is passing the relevant transfer-level gatekeeper course
- Multivariate logistic regression and marginal means analysis
- Study included an implementation survey
The Students
Sample

• Compare outcomes of accelerated students and similar students enrolled in traditional English and math basic skills sequences
• 18 accelerated pathways at 16 colleges
• 2011-2012 academic year - CAP’s first pilot year
• Students were followed through spring 2013
• 1,836 accelerated English students & 22,354 comparison students with complete data
• 653 accelerated math students & 23,607 comparison students with complete data
English students

Compared to the English comparison group, accelerated English students were:

• more likely to have a lower current level;
• more likely to be Black or Hispanic;
• more likely to have received a Pell grant;
• equally likely to have been in EOPS;
• equally likely to be female;
• slightly more likely not to have graduated HS;
• and more likely to have an identified disability.
Math students

Compared to the math comparison group, accelerated math students were:

- more likely to have a lower current level;
- more likely to be Black or White;
- more likely to have received a Pell grant;
- more likely to have been in EOPS;
- more likely to be female;
- slightly less likely not to have graduated HS
- and; more likely to have an identified disability
Survey Data: Which Students Did Colleges Recruit for Accelerated Courses?

<table>
<thead>
<tr>
<th>Target Population</th>
<th>English</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>At risk for academic failure</td>
<td>43%</td>
<td>100%</td>
</tr>
<tr>
<td>Unsuccessful in traditional sequence</td>
<td>43%</td>
<td>88%</td>
</tr>
<tr>
<td>Students with low confidence in their skills</td>
<td>29%</td>
<td>75%</td>
</tr>
<tr>
<td>Students of color</td>
<td>29%</td>
<td>50%</td>
</tr>
<tr>
<td>First-time college students</td>
<td>43%</td>
<td>38%</td>
</tr>
<tr>
<td>Honors students</td>
<td>0%</td>
<td>13%</td>
</tr>
<tr>
<td>Students with high confidence in their skills</td>
<td>0%</td>
<td>13%</td>
</tr>
<tr>
<td>Learning community participants</td>
<td>29%</td>
<td>13%</td>
</tr>
<tr>
<td>Count of Responses</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>
Outcomes

After controlling for differences
in pre-existing student characteristics
Main Findings

• Acceleration effects were large and robust
• Acceleration worked for students of all backgrounds
• Acceleration worked for students at all placement levels
• Implementation Mattered™
CAP Acceleration increased odds of sequence completion

Acceleration Odds Ratio (Effect Size) for English CAP Colleges

- All English CAP pathways: 1.5
- Low-acceleration English pathways: 1.2
- High-acceleration English pathways: 2.3
- All Math CAP pathways: 4.5
Marginal means for the percentage of students completing transfer-level English for accelerated and comparison sequences by current level. McFadden’s pseudo-$R^2 = 0.15$
Marginal means for the percentage of students completing transfer-level math for accelerated and comparison sequences by current level. McFadden's pseudo-$R^2 = 0.14$
Pathway-specific results: English

Acceleration effect size (odds ratio) by college-specific English pathways (lighter bars with asterisks (*) are significant at $p < 0.01$).
Pathway-specific results: Math

Acceleration effect size (odds ratio) by college-specific math pathways (lighter bars with asterisks (*) are significant at $p < 0.01$).

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambda</td>
<td>0.94</td>
</tr>
<tr>
<td>Nu*</td>
<td>2.77</td>
</tr>
<tr>
<td>Mu*</td>
<td>3.06</td>
</tr>
<tr>
<td>Delta*</td>
<td>3.12</td>
</tr>
<tr>
<td>Theta*</td>
<td>5.03</td>
</tr>
<tr>
<td>Beta*</td>
<td>5.11</td>
</tr>
<tr>
<td>Eta*</td>
<td>7.25</td>
</tr>
<tr>
<td>Kappa*</td>
<td>17.76</td>
</tr>
</tbody>
</table>
Raw Descriptive Data
(Not adjusted for statistical controls)
Unadjusted throughput rates for traditional and accelerated pathways by ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Traditional</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
<td>22.6%</td>
<td>39.3%</td>
</tr>
<tr>
<td>Black</td>
<td>9.9%</td>
<td>40.9%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>14.0%</td>
<td>35.2%</td>
</tr>
<tr>
<td>White</td>
<td>17.5%</td>
<td>44.3%</td>
</tr>
</tbody>
</table>
Percent at 3 or 4 levels below transfer in math

Percent 3-4 levels below in math by ethnicity

- Asian: 21%
- Black: 48%
- Hispanic: 36%
- White: 31%
Large differences in outcomes for students in lowest 2 levels in math

Traditional and accelerated throughput rates (unadjusted)

- **Asian**
  - Traditional: 14.1%
  - Accelerated: 37.5%

- **Black**
  - Traditional: 7.4%
  - Accelerated: 48.6%

- **Hispanic**
  - Traditional: 7.3%
  - Accelerated: 32.3%

- **White**
  - Traditional: 10.1%
  - Accelerated: 42.9%

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How many more students would complete transferable math if acceleration were scaled?

Number of students completing math in current vs. scaled scenario

<table>
<thead>
<tr>
<th></th>
<th>Traditional</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian (current)</td>
<td>500</td>
<td>1000</td>
</tr>
<tr>
<td>Asian (at scale)</td>
<td>1500</td>
<td>2500</td>
</tr>
<tr>
<td>Black (current)</td>
<td>1000</td>
<td>1500</td>
</tr>
<tr>
<td>Black (at scale)</td>
<td>2000</td>
<td>3000</td>
</tr>
<tr>
<td>Hispanic (current)</td>
<td>2000</td>
<td>3500</td>
</tr>
<tr>
<td>Hispanic (at scale)</td>
<td>3000</td>
<td>5000</td>
</tr>
<tr>
<td>White (current)</td>
<td>2500</td>
<td>4000</td>
</tr>
<tr>
<td>White (at scale)</td>
<td>3500</td>
<td>5500</td>
</tr>
</tbody>
</table>

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Equity implications at one ‘second wave’ college

Throughput in traditional English sequence vs. accelerated:
IVC fall 2012 - fall 2014

<table>
<thead>
<tr>
<th>Course</th>
<th>Overall Rate</th>
<th>Asian Americans</th>
<th>African Americans</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR 201 &amp; 301</td>
<td>48%</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>EXP 389</td>
<td>69%</td>
<td>70%</td>
<td>60%</td>
</tr>
</tbody>
</table>

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Placement and Education Plan
Implications

Accelerated English

• Placement could be binary = transfer level or not
• Students may also be able to place beyond college composition with AP test, high school articulation, etc.

Accelerated Math

• Placement potentially more complex with student ed plans having STEM or non-STEM pathways
• Placement into statistics binary = stats or pre-stats
• Placement into STEM pathways has more levels
• Non-STEM math can also have more pathways such as business prep, teacher prep, or general education
Thank You!

Craig Hayward, chayward@ivc.edu

Terrence Willett, terrence@cabrillo.edu


CAP Project, http://cap.3csn.org/