Toward the Development of Equity Indicators for California

PACE Webinar
April 3, 2020

Christopher Edley, Jr., Heather Hough, Michal Kurlaender, sean reardon
Today’s panelists

Heather J. Hough  
Executive Director,  
Policy Analysis for California Education

Christopher Edley, Jr.  
The Honorable William H. Orrick, Jr.  
Distinguished Professor, UC Berkeley School of Law

sean reardon  
Professor of Poverty and Inequality in Education, Stanford University

Michal Kurlaender  
Professor of Education Policy, University of California, Davis
Today’s agenda

• Overview of the NRC report on Educational Indicators (Edley)
• Examples of recent research that flesh out the indicators
  • The Educational Opportunity Project at Stanford University (Reardon)
  • The California Education Lab at UC Davis (Kurlaender)
  • Miscellaneous PACE & *Getting Down to Facts II* research (Heather)
• Discussion, recommendations & next steps (Edley)
• Q&A
Logistical notes

• Please type your questions & comments into the Q&A box
  • You can vote on others’ entries, which will determine which questions get answered first

• Slides and links to resources can be found on the PACE event page: https://edpolicyinca.org/events/pace-webinar-toward-development-equity-indicators-california
  • Links to the event page and resources will also be posted for you periodically

• The video recording from this webinar will be posted online early next week
Overview of the NRC Report on Educational Indicators

Christopher Edley, Jr.
April 3, 2020
A Great Indicator System -- Elements

1. measure multiple dimensions of outcomes and opportunities, over time;
2. disparities most salient for policy;
3. comparable across time/place, at several organizational scales (classrooms to national);
4. indicators and measures appropriate to grade level;
5. contextual and structural characteristics of or affecting the educational system, such as racial segregation and concentrated poverty;
6. frequent, understandable, high-level summary statistics, plus nuanced;
7. based on scientifically sound measures; and
8. mechanisms for continuous improvement based on research and other developments.
Indicators of Disparities in Student Outcomes
3 Domains; 7 Indicators

1: Disparities in Academic Readiness
2: Disparities in Self-Regulation and Attention Skills.
3: Disparities in Engagement in Schooling.
4: Disparities in Performance in Coursework.
5: Disparities in Performance on Tests.
6: Disparities in On-Time Graduation.
7: Disparities in Postsecondary Readiness.
Indicators of Disparities in Access to Opportunities and Resources

**4 Domains; 9 Indicators**

- 14: Disparities in School Climate.
- 16: Disparities in Nonacademic Supports for Student Success.

- 10: Disparities in Access to Effective Teaching.
- 11: Disparities in Access to and Enrollment in Rigorous Coursework.
- 12: Disparities in Curricular Breadth.

- 9: Disparities in Access to and Participation in High-Quality Early Childhood Education.
1: Disparities in Academic Readiness.
2: Disparities in Self-Regulation and Attention Skills.
3: Disparities in Engagement in Schooling.
4: Disparities in Performance in Coursework.
5: Disparities in Performance on Tests.
6: Disparities in On-Time Graduation.
7: Disparities in Postsecondary Readiness.
9: Disparities in Access to and Participation in High-Quality Early Childhood Education.
10: Disparities in Access to Effective Teaching.
11: Disparities in Access to and Enrollment in Rigorous Coursework.
12: Disparities in Curricular Breadth.
14: Disparities in School Climate.
15: Disparities in Nonexclusionary Discipline Practices.
16: Disparities in Nonacademic Supports for Student Success.
<table>
<thead>
<tr>
<th>Domain B: K–12 Learning and Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicators, Constructs</strong></td>
</tr>
<tr>
<td><strong>3 Engagement in Schooling</strong></td>
</tr>
<tr>
<td>- Attendance/absenteeism</td>
</tr>
<tr>
<td>- Academic engagement</td>
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<tr>
<td><strong>4 Performance in Coursework</strong></td>
</tr>
<tr>
<td>- Success in classes</td>
</tr>
<tr>
<td>- Accumulating credits (being on track to graduate)</td>
</tr>
<tr>
<td>- Grades and GPA</td>
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<tr>
<td><strong>5 Performance on Tests</strong></td>
</tr>
<tr>
<td>- Achievement in reading, math, and science</td>
</tr>
<tr>
<td>- Learning growth in reading, math, and science</td>
</tr>
</tbody>
</table>
1: Disparities in Academic Readiness.
2: Disparities in Self-Regulation and Attention Skills.
3: Disparities in Engagement in Schooling.
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11: Disparities in Access to and Enrollment in Rigorous Coursework.
12: Disparities in Curricular Breadth.
## Domain F: Curricula and Instruction

<table>
<thead>
<tr>
<th>10</th>
<th>Disparities in Access to Effective Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Teachers’ years of experience</td>
</tr>
<tr>
<td></td>
<td>- Teachers’ credentials, certification</td>
</tr>
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<td>- Racial and ethnic diversity of the teaching force</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11</th>
<th>Access to and Enrollment in Rigorous Coursework</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>- Availability and enrollment in advanced, rigorous course work</td>
</tr>
<tr>
<td></td>
<td>- . . . AP, IB, and dual enrollment programs</td>
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<tr>
<td></td>
<td>- . . . Gifted and talented programs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12</th>
<th>Curricular Breadth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Availability/enrollment in arts, social sciences, sciences, and technology</td>
</tr>
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</table>

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<thead>
<tr>
<th>13</th>
<th>HQ Academic Supports</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Access to and participation in formalized systems of tutoring or other types of academic supports, including special education services and ELs</td>
</tr>
</tbody>
</table>
equity and academic achievement in CA school districts

sean f. reardon
stanford university
3 april, 2020
Achievement at Kindergarten Entry and SES, All Students (2010)

Reading

Math

© sean f. reardon, 2018
Academic Achievement and Socioeconomic Status

<----- Poor/Disadvantaged ------------------- Affluent/Advantaged ----->
Average Grade 3 Achievement, White and Hispanic Students

- 45-degree line
  (where White = Hispanic Achievement)
- California Districts

© 2019 sean f. reardon
Average Grade 8 Achievement, White and Hispanic Students

- 45-degree line (where White = Hispanic Achievement)
- California Districts

© 2019 sean f. reardon
Average Achievement Growth, White and Hispanic Students

- 45-degree line (where White = Hispanic growth rate)
- California Districts

© 2019 sean f. reardon
White-Hispanic Achievement Gap, by White-Hispanic Segregation
All US School Districts with at least 100 Hispanic & 100 White Students/Grade, 2009-2016
Equity Indicators of College and Career Readiness

Michal Kurlaender
University of California, Davis
Although a large majority of college-bound students enrolled in math in their final year of high school, advanced math pathways are not equally accessed among California high school seniors. These disparities in enrollment patterns by race/ethnicity and school characteristics likely contribute to disparities in postsecondary access and success.
# Math Course-taking by California 12th Graders

<table>
<thead>
<tr>
<th></th>
<th>Percentage of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-2016</td>
</tr>
<tr>
<td>AP Math</td>
<td>20.1</td>
</tr>
<tr>
<td>Advanced Math</td>
<td>22.5</td>
</tr>
<tr>
<td>Algebra II</td>
<td>12.7</td>
</tr>
<tr>
<td>Below Algebra II</td>
<td>14.0</td>
</tr>
<tr>
<td>Other</td>
<td>4.2</td>
</tr>
<tr>
<td>No Math</td>
<td>26.5</td>
</tr>
<tr>
<td>N</td>
<td>389,027</td>
</tr>
</tbody>
</table>
12th grade Math Course-taking by Race/Ethnicity
12\textsuperscript{th} grade Math Course-taking by Socioeconomic Status
82% of schools have more than half of their seniors enrolled in math.
“We’ve been talking about college readiness for two or three decades now in our institution. What does it really mean, and how does it actually look?”
Equity in College Preparation—College & Career Readiness Indicator

Figure 1. Percentage of Students Prepared and Approaching Prepared, by Subgroup

- All: 42% Prepared, 17% Approaching Prepared
- English Learners: 15% Prepared, 17% Approaching Prepared
- SED: 34% Prepared, 19% Approaching Prepared
- Asian/PI: 72% Prepared, 10% Approaching Prepared
- African American: 21% Prepared, 19% Approaching Prepared
- Latinx: 34% Prepared, 17% Approaching Prepared
- White: 52% Prepared, 16% Approaching Prepared

Prepared: Blue
Approaching Prepared: Orange
### Table 3. Percentage of Students Prepared or Approaching Prepared on the CCI Pathways, by Subgroup

<table>
<thead>
<tr>
<th>Prepared</th>
<th>English Learners</th>
<th>SED</th>
<th>Asian/PI</th>
<th>African American</th>
<th>Latinx</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>42</td>
<td>15</td>
<td>34</td>
<td>72</td>
<td>21</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>52</td>
</tr>
<tr>
<td>Approaching Prepared</td>
<td>17</td>
<td>17</td>
<td>19</td>
<td>10</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

#### Individual Pathways

<table>
<thead>
<tr>
<th>SBAC (scores of 3+ in ELA and Math)</th>
<th>26</th>
<th>5</th>
<th>17</th>
<th>59</th>
<th>10</th>
<th>16</th>
<th>37</th>
</tr>
</thead>
<tbody>
<tr>
<td>IB (2 exams with score of 4+)</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>AP (2 exams with score of 3+)</td>
<td>14</td>
<td>3</td>
<td>8</td>
<td>42</td>
<td>4</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>College Credit (2 semesters C- or better)</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>A-G Completion +1 criteria</td>
<td>34</td>
<td>10</td>
<td>27</td>
<td>63</td>
<td>18</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td>CTE + 1 criteria</td>
<td>8</td>
<td>3</td>
<td>7</td>
<td>12</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>State Seal of Biliteracy +SBAC</td>
<td>9</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Military Science/Leadership + SBAC</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Number of Students in Subgroup</td>
<td>518,317</td>
<td>73,613</td>
<td>361,486</td>
<td>50,211</td>
<td>34,021</td>
<td>272,753</td>
<td>124,294</td>
</tr>
</tbody>
</table>

Note: Statistics calculated from student-level College/Career Indicator data for the 2017-18 cohort. Analytical sample includes all students statewide. Rates in each pathway calculated based on criteria for Prepared in Table 2.
Equity in College and Career Readiness—Assessment Performance

Figure 3. Student Performance on the 11th Grade Smarter Balanced Assessments, by Subgroup

- All: 31% Neither Standard Met, 3% Standard Met, Math Only, 19% Standard Met, ELA Only, 14% Standard Met, Both
- English Learners: 30% Neither Standard Met, 87% Standard Met, Math Only, 1% Standard Met, ELA Only, 1% Standard Met, Both
- SED: 1% Neither Standard Met, 50% Standard Met, Math Only, 19% Standard Met, ELA Only, 1% Standard Met, Both
- Asian/PI: 1% Neither Standard Met, 61% Standard Met, Math Only, 3% Standard Met, ELA Only, 1% Standard Met, Both
- African American: 3% Neither Standard Met, 57% Standard Met, Math Only, 19% Standard Met, ELA Only, 1% Standard Met, Both
- Latinx: 32% Neither Standard Met, 48% Standard Met, Math Only, 1% Standard Met, ELA Only, 1% Standard Met, Both
- White: 29% Neither Standard Met, 26% Standard Met, Math Only, 1% Standard Met, ELA Only, 2% Standard Met, Both
Equity in College Preparation—A-G Coursework

Figure 5. Percentage of Students Successfully Completing A-G Coursework, by Subgroup

Note: Statistics calculated from student-level College/Career Indicator data for the 2017-18 cohort using only the A-G completion indicator. Analytical sample includes all students statewide.
Research shows that dual enrollment—a practice in which high school students take college courses while they are still in high school—has multiple benefits for students, high schools and colleges.
12.6% of California high schoolers take community college courses
82% of California high schools have no students enrolled in community college courses.
Evidence to Support the Development of Equity Indicators from other recent *Getting Down to Facts II* & PACE publications

PACE Webinar
April 3, 2020

Heather Hough
Figure 2. Student Groups by Chronic Absence Performance Levels (Schools)

[Bar chart showing student groups by chronic absence performance levels for different racial/ethnic groups.]

https://edpolicyinca.org/publications/chronic-absence-dashboard
California Cohort Graduation Rates by Ethnicity

https://edpolicyinca.org/publications/what-californias-high-school-graduation-rate
Figure 7. Availability of Licensed Child Care for Working Parents: 2014

https://gettingdowntofacts.com/publications/early-childhood-education-california
**Figure 12:** Shortages Disproportionately Impact Schools Serving Historically Disadvantaged Students

Percentages of principals hiring teachers on substandard credentials or leaving positions vacant by school characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High proportion of FRPL students***</td>
<td>66.7%</td>
</tr>
<tr>
<td>Low proportion of FRPL students***</td>
<td>42.8%</td>
</tr>
<tr>
<td>High proportion of students of color*</td>
<td>65.4%</td>
</tr>
<tr>
<td>Low proportion of students of color*</td>
<td>47.9%</td>
</tr>
</tbody>
</table>

Table 1. California Proportion of Racial/Ethnic Group with IEP by Test Score Decile (N = 8,540 Students)

<table>
<thead>
<tr>
<th>Test Score</th>
<th>Whites</th>
<th>African Americans</th>
<th>Latinx</th>
<th>Asian Americans</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lowest 10 percent</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.54</td>
<td>.49</td>
<td>.38 **</td>
<td>.43</td>
</tr>
<tr>
<td></td>
<td>.20</td>
<td>12</td>
<td>.07 ***</td>
<td>.12</td>
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<td></td>
<td>.15</td>
<td>.02 **</td>
<td>.04 ***</td>
<td>.00 *</td>
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<tr>
<td></td>
<td>.06</td>
<td>.05</td>
<td>.02 *</td>
<td>.07</td>
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<tr>
<td><strong>Middle 50 percent</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>.06</td>
<td>.03</td>
<td>.02 **</td>
<td>.00 +</td>
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<td>.05</td>
<td>.07</td>
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<td>.01 ***</td>
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<td></td>
<td>.05</td>
<td>.02</td>
<td>.01 **</td>
<td>.02</td>
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<tr>
<td><strong>Highest 10 percent</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>.01</td>
<td>.00</td>
<td>.03</td>
<td>.00</td>
</tr>
</tbody>
</table>

Note. Significance levels based on difference of proportions Z tests in which each race/ethnic group is compared to Whites in the same test score decile. +p < .10. *p < .05. **p < .01. ***p < .001.

Source. Author’s calculation from 2013 NAEP data (nationsreportcard.gov), restricted to California.

https://edpolicyinca.org/publications/achievement-gaps-and-MTSS
Figure 4. Student CC Gaps by Student Demographics, Overall vs. Within Schools

https://edpolicyinca.org/publications/using-surveys-students-social-emotional-skills-and-school-climate-accountability-and
Figure 7a. Percent of elementary schools offering mental health services, by student characteristic tertiles
