Overview

• The academic pipeline problem and educational equity

• Capital, alienation, or challenge?

• What are Logic Models?

• What are Integrated Logic Models (ILMs)? How are they useful?

• A collaboration building ILMs by integrating:
  1. Social science theories of change
  2. Research-based activities and outcomes across programs
  3. Outcomes with student-level longitudinal data

• University of California, Santa Cruz: An H.S.I. building its ILM

• Towards a common language

• An invitation
The Academic Pipeline Problem in the U.S.

<table>
<thead>
<tr>
<th></th>
<th>% High School Graduates</th>
<th>% College Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic/Latinx</td>
<td>63</td>
<td>14</td>
</tr>
<tr>
<td>Native American</td>
<td>77</td>
<td>13</td>
</tr>
<tr>
<td>African American</td>
<td>84</td>
<td>20</td>
</tr>
<tr>
<td>European American</td>
<td>88</td>
<td>34</td>
</tr>
<tr>
<td>Asian American</td>
<td>89</td>
<td>52</td>
</tr>
</tbody>
</table>

(U.S. Census Bureau, 2012)

Capital, Alienation, or Challenge?

- **Social Capital**: Cultural reproduction across generations, “the rich stay rich and the poor stay poor” (Bourdieu, 1986)
  → Community Cultural Wealth (Yosso, 2005)

- **Alienation or belonging?** Marginalization and oppositional identities (Durkheim, 1915; Fordham & Ogbu, 1986)
  → Sense of belonging (Tajfel & Turner, 1986; Hurtado et al., 2012)

- **Challenge and resiliency**: Navigating identities across challenges and resources in cultural worlds, “proving gatekeepers wrong” (Phelan et al., 1998; Cooper, 2011; Azmitia et al., 2018)
  → Integrating capital, alienation, and challenge (Cooper et al., 2018)
## A Sample Logic Model for One Program

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Implementation of Theory of Change</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs</td>
<td>Resources</td>
<td>Activities</td>
</tr>
<tr>
<td>Families High % low-income, limited English, low educational attainment</td>
<td>Families</td>
<td>Aspirations for child’s education</td>
</tr>
<tr>
<td>Schools Low-performing Students Low college prep, enroll, graduation</td>
<td>Staff, database, funding</td>
<td>Academic Advising</td>
</tr>
<tr>
<td>Students</td>
<td>Partners</td>
<td>Students, schools, campus, region, state, nation</td>
</tr>
</tbody>
</table>

### What are Integrated Logic Models (ILMs)? How are they useful?

- ILMs integrate multiple programs along the pipeline into one LM for students’ college and career pathways and institutional change
- Integrating social science theories of change advances knowledge and unifies research, practice, and policies (often fragmented and fragile)
- Integrating activities builds coherence, fidelity, collective impact, and broader institutional change for students’ pathways
- Integrating longitudinal data streamlines data collection and strengthens research, evaluation, and sustainability
- Clearer roadmaps of more than one successful pathway for students, families, partners, and public and private funders
A Collaboration of P-20 Alliances: Building ILMs for Educational Equity from Preschool through Graduate School to Careers

P/K->Elementary->MS->HS->Community and 4-year Colleges->Grad/Prof->Careers

• Santa Cruz County College Commitment (S4C)
• University of California Office of the President (UCOP)
  4th grade-------------------------------------->to and through college
• UC Santa Cruz Educational Partnership Center
  6th grade-------------------------------------->to and though college to careers
• Cabrillo Advancement Program (CAP) at Cabrillo College
  6th grade--------------------------------------> to and through community/4-yr colleges to careers
• University of Colorado - Colorado Springs
  7th grade STEM-----------------------------------> to and through college to careers
• UC Santa Cruz Hispanic-Serving Institutions
  to college-->community college transfer-->graduation
• Santa Cruz County Adult Education Block Grant
  Adult Ed-->community college-->Career Tech Ed (CTE) to careers

Strategy 1: Integrating Social Science Theories of Change for Educational Equity

• Seven College-Going Conditions (Oakes, 2003) - how equity and access to college preparation and success require: 1) safe and adequate school facilities; 2) college-going school cultures; 3) academic rigor; 4) qualified teachers; 5) intensive academic and social supports; 6) students developing multicultural college and career identities; and 7) family-neighborhood-school connections

• Multicontextual Model for Diverse Learning Environments (Hurtado & Alvarado, 2015) – how social-historical, policy, institutional, and community contexts, including staff and faculty identities, define campus diversity climates; curricular and co-curricular learning environments shape student retention and achievement and sense of belonging, which can strengthen social equity and democratic and economic outcomes

• Bridging Multiple Worlds (Cooper, 2011) - how culturally diverse youth navigate challenges and resources across family, peer, school, and community worlds along college and career pathways: 1) demographics of youth moving through school; 2) college/career/cultural identity pathways; 3) math and language pathways; 4) challenges/gatekeepers and resources/brokers across cultural worlds; and 5) P-20 cultural research partnerships that boost resources youth draw across worlds
A Common Framework for P-20 Research, Policy, and Practice in the 10-campus University of California System (Cooper, 2011; Cooper, Mehan, & Halimah, 2007; Oakes, 2003)

<table>
<thead>
<tr>
<th>7 Conditions for Equity and Diversity in College Access (Oakes, 2003)</th>
<th>PreK</th>
<th>Elementary</th>
<th>Middle</th>
<th>HS</th>
<th>Community College &amp; University</th>
<th>Graduate &amp; Prof. schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe and Adequate School Facilities</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>College-Going School Culture</td>
<td>3</td>
<td>4</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Rigorous Academic Curriculum</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>8</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Qualified Teachers</td>
<td>3</td>
<td>7</td>
<td>9</td>
<td>8</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Intensive Academic and Social Supports</td>
<td>1</td>
<td>3</td>
<td>9</td>
<td>8</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Opportunities for Multi-Cultural College-Going Identity</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>8</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Family-Neighborhood-School Connections</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Number of UC campuses (of 10) reporting activity

Figure 3. Multicontextual Model for Diverse Learning Environments (Hurtado, et al., 2012)
**Bridging Multiple Worlds Theory** (Cooper, 2011, Cooper et al., 2018)

The Academic Pipeline

1. Demographics of families navigating through the academic pipeline from childhood to careers

2. Youth developing aspirations and identities

3. Math and language academic pathways

4. Evolving constellations of resources and challenges across cultural worlds

5. Cultural Research Partnerships and Alliances from Preschool through College (P-20)

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**2: Integrating Research-Based Activities across Programs**

GEAR UP, EAOP, MESA, and Cal-SOA at UCSC EPC (Cooper & Rocha-Ruiz, 2016)

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Implementation (Oakes)</th>
<th>Outcomes and Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs</td>
<td>Resources</td>
<td>Activities</td>
</tr>
<tr>
<td>High % families: low income, limited English, low educational attainment, college knowledge</td>
<td>Family aspirations for child’s education</td>
<td><strong>Academic Advising</strong>: College, financial aid, <strong>Individualized Career Development</strong>: College and career knowledge</td>
</tr>
<tr>
<td>Low-performing schools; Students: low college readiness, enrollment, graduation</td>
<td><strong>Professional Development</strong></td>
<td><strong>Career Plans</strong>: College visits</td>
</tr>
</tbody>
</table>

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3: Integrating Outcomes with Student-Level Longitudinal Data
Cabrillo Advancement Program (CAP) at Cabrillo College

Elementary->Middle School->HS->Community College & 4-yr College->Career

Alg 1>College-prep>College-Community College>College Completion>Careers
courses enrollment degrees & transfer & degrees

Cal-PASS Plus - www.calpassplus.org - statewide longitudinal database of individual students’ K-12-through-college records

CAP, UC Santa Cruz, & Cal-PASS Plus merge student-level data:
- Demographics
- Program participation
- Surveys: Program activities - Theory of change: Cooper (2011)
- Math & language pathways: MS>HS>college>transfer>degrees
- Alumni narratives: More than one path through college to careers

Tracking the Academic Pipeline Problem:
A Longitudinal Data Dashboard in One Region
Cal-PASS Plus - www.calpassplus.org
## UC Santa Cruz: A Hispanic-Serving Institution

https://studentsuccess.ucsc.edu/hsi

### Equity Analysis:

**White/Caucasian and Latino Students’ Math Grades**

<table>
<thead>
<tr>
<th>Activities (Hurtado et al.)</th>
<th>UCSC MAPA</th>
<th>SJCC-UCSC Cooperative</th>
<th>HSI STEM - SEMILLA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Math</strong></td>
<td>Collaborative Math 2 – College Algebra</td>
<td></td>
<td>STEM Scholars Collaborative College Math 3 Seminars</td>
</tr>
<tr>
<td><strong>Writing</strong></td>
<td>WORD Regional Institutes (SF, Oakland, Los Angeles)</td>
<td>Research Writing Course - SJCC</td>
<td>Writing support for internship applications</td>
</tr>
<tr>
<td><strong>Sense of Belonging</strong></td>
<td>Regional Family Conferences El Centro Internships Student Focus Groups Campus Engagement/Forums</td>
<td>SJCC Student Campus Visits to UCSC, Family Day at UCSC</td>
<td>STEM Scholars Collaborative: ACE, MEP, STEM Diversity, LSS, EOP</td>
</tr>
<tr>
<td><strong>Advising</strong></td>
<td>Math 2 and Writing Advising, CFL/iMAP, Multicultural Competence Adviser Training</td>
<td>Transfer/Retention Counseling, Graduate Student Mentoring, Financial Literacy</td>
<td>Holistic STEM Counselors STEM Academy Career Development</td>
</tr>
<tr>
<td><strong>Transfer and Dual Enrollment</strong></td>
<td>-</td>
<td>Research Opportunities Articulation - SJCC Dual Enrollment - LALS</td>
<td>STEM Transfer Academies and Articulation Review</td>
</tr>
<tr>
<td><strong>Professional Development, Research &amp; Eval</strong></td>
<td>Writing and Math faculty PD</td>
<td>Faculty PD-SJCC &amp; UCSC Counselor PD - SJCC</td>
<td>STEM faculty PD TA Training Certificate</td>
</tr>
</tbody>
</table>

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**Math 2 Achievement in Nandini’s Fall 2010-Fall 2017 Courses**

- Math 2 stretch + twice weekly sections
- No mandatory + optional sessions.
- Mandatory sections + tutoring for extra credit
- Weekly sections + tutoring
- Intervention years

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Towards a Shared Language across Theories, Activities, and Longitudinal Outcomes

• Cross-Institutional College-Going, Transfer, and Completion Partnerships
• Rigorous Curriculum
• Academic and Social Support
• Multicultural College and Career Identity Pathways
• Sense of Campus and Career Belonging
• Family Partnerships
• Financial Aid
• Transfer and Dual Enrollment
• Professional Development
• Collaborative Research, Evaluation, and Equity Analysis

Outcomes: Increase rates & close equity gaps: college enrollment, transfer-level math & English, grades, persistence, STEM majors, transfer, 6-yr graduation
### Sketching Your Individual and Integrated Logic Models

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<td>Multicultural College and Career Identities</td>
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<td></td>
<td>Family Partnerships</td>
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<td>Transfer and Dual Enrollment</td>
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<tr>
<td></td>
<td>Professional Development</td>
<td></td>
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<tr>
<td></td>
<td>Research, Evaluation, and Equity Analyses</td>
<td></td>
</tr>
</tbody>
</table>

**An Invitation:**

**Bridging Multiple Worlds Alliance**

[www.bridgingworlds.ucsc.edu](http://www.bridgingworlds.ucsc.edu)

- Growing network of state, national, and international partners
- How immigrant, low-income, and URM youth build college and career pathways without losing ties to families and cultural communities
- Advancing research, practice, and policy in collaboration with alliance partners and youth themselves

- Bridging Multiple Worlds Tools (Cooper, 2011) and on website
- Roundtable on Integrated Logic Models and Databases
- Animating Pathways to College and Careers
- Cal-PASS Plus Regional Learning Collaborative
References


