Pathways to a 4-year degree: The case of underrepresented students

Topics

- What matters & when
- What we have learned from two cohorts
- Pathways to college for low-SES middle students
- Pathways to college for Latino 8th graders

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Educational Policy Institute & WISCAPE Sr. Researcher
UW-Madison

Dr. Cabrera
What factors are the best predictors of persistence in college?

1. Middle school
2. Collegiate experiences
3. Family & community related
4. 1 and 3
### What we have learned as to what matters most on the path to a four-year degree

**Prepared by Alberto F. Cabrera & Helen Caffrey, December 12, 2001**

<table>
<thead>
<tr>
<th>STAGES</th>
<th>FACTORS/PREDICTORS</th>
<th>OUTCOMES</th>
<th>INTERVENTION STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-requisites: Grades 7th-9th</td>
<td>Parental expectations, encouragement &amp; support</td>
<td>Career/Occupational Aspirations</td>
<td>Career exploration &amp; decision making workshops</td>
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<tr>
<td></td>
<td>Parental encouragement &amp; involvement in school activities</td>
<td>Educational Aspirations</td>
<td>Academic tutorial session</td>
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<tr>
<td></td>
<td>Parental involvement in school activities</td>
<td>Planning for college</td>
<td>Visitation to postsecondary institutions</td>
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<td></td>
<td>Socioeconomic Status</td>
<td>Enrollment in College-Bound Curriculum</td>
<td>Assessing academic potential and identifying gaps</td>
</tr>
<tr>
<td></td>
<td>Parental College Experiences</td>
<td>Reading, writing, math, critical thinking</td>
<td>Curriculum planning</td>
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<tr>
<td></td>
<td>Information About College</td>
<td>Skills &amp; competencies (preparation for college)</td>
<td>Parental involvement</td>
</tr>
<tr>
<td></td>
<td>Student Ability</td>
<td></td>
<td>Field trips to workplaces for different occupations</td>
</tr>
<tr>
<td>Search: Grades 10th-12th</td>
<td>Parental encouragement, support &amp; involvement in school activities</td>
<td>Listing of Tentative Institutions</td>
<td>High Teachers' expectations</td>
</tr>
<tr>
<td></td>
<td>Educational &amp; Occupational Aspirations</td>
<td>Narrowing List of Tentative Institutions</td>
<td>Parental workshops on college and ways to finance it</td>
</tr>
<tr>
<td></td>
<td>Planning for college</td>
<td>Securing Information on Institutions</td>
<td>Counseling on postsecondary programs</td>
</tr>
<tr>
<td></td>
<td>Socioeconomic Status</td>
<td>Taking Pre-SAT &amp; Pre-ACT</td>
<td>Collecting and disseminating information about postsecondary institutions</td>
</tr>
<tr>
<td></td>
<td>Security of Potential Institutions</td>
<td></td>
<td>Academic tutorial sessions</td>
</tr>
<tr>
<td></td>
<td>Preparation for college</td>
<td></td>
<td>Participation in &quot;College Days&quot; activities</td>
</tr>
<tr>
<td></td>
<td>Student Ability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choice: Grades 11th-12th</td>
<td>Educational &amp; Occupational Aspirations</td>
<td>Awareness of College Expenses &amp; Financial Aid</td>
<td>Assistance in filling out FAFSA</td>
</tr>
<tr>
<td></td>
<td>Planning for college</td>
<td>Awareness of Institutional Attributes &amp; Admission Standards</td>
<td>Assistance in filling out college application forms and meeting requirements</td>
</tr>
<tr>
<td></td>
<td>Socioeconomic Status</td>
<td>Attaining Scholastic Averages, Attitudes &amp; Competencies</td>
<td>Collecting and disseminating information about sources of financial aid</td>
</tr>
<tr>
<td></td>
<td>Student Ability</td>
<td>Support from Family &amp; Friends</td>
<td>Tutorial session &amp; summer programs to enhance student academic ability &amp; exposure to college</td>
</tr>
<tr>
<td></td>
<td>Parental Encouragement</td>
<td>Institutional Commitment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Institutional Attributes (quality/campus size/majors availability/distance)</td>
<td>Submission of Applications</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived Ability to Pay (perceived resource/perceived cost)</td>
<td>Pre-Registration</td>
<td></td>
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<tr>
<td></td>
<td>Preparation for college</td>
<td>Attendence</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Application for Financial Aid</td>
<td></td>
</tr>
<tr>
<td>College freshmen year: Junior year</td>
<td>Preparation for college</td>
<td>Ongoing in:</td>
<td>Pre-entry assessment &amp; placement of students according to needs</td>
</tr>
<tr>
<td></td>
<td>Parental encouragement &amp; support</td>
<td>• Personal development</td>
<td>Study &amp; learning workshops</td>
</tr>
<tr>
<td></td>
<td>College aspirations</td>
<td>• Problem solving</td>
<td>Active learning &amp; collaborative pedagogies in the classroom and out of the classroom</td>
</tr>
<tr>
<td></td>
<td>Campus and classroom climate</td>
<td>• Critical thinking</td>
<td>Faculty mentorship programs</td>
</tr>
<tr>
<td></td>
<td>College experiences</td>
<td>• Understanding science &amp; technology</td>
<td>Learning communities (cluster programs)</td>
</tr>
<tr>
<td></td>
<td>• Out-of-classroom</td>
<td>• Appreciation for art</td>
<td>Freshman year experiences (orientation &amp; academic programs)</td>
</tr>
<tr>
<td></td>
<td>• Quality &amp; intensity of instruction</td>
<td>• Career maturity</td>
<td>Co-curricular activities</td>
</tr>
<tr>
<td></td>
<td>• Counseling</td>
<td>• Occupational awareness</td>
<td>Recognition of student values &amp; their inclusion in campus governance</td>
</tr>
<tr>
<td></td>
<td>• Interactions with peers &amp; instructors</td>
<td>• Professional &amp; occupational competencies</td>
<td>Career exploration activities</td>
</tr>
<tr>
<td></td>
<td>Engagement with the academic and social component of the institution</td>
<td>• Ability to work in teams</td>
<td>Networking with alumni &amp; potential employers</td>
</tr>
<tr>
<td></td>
<td>Intensity &amp; quality of curriculum</td>
<td>• Tolerance &amp; openness to diversity</td>
<td>Scholarships</td>
</tr>
<tr>
<td></td>
<td>Working on campus</td>
<td>• Work ethic</td>
<td>Financial aid planning &amp; debt advising</td>
</tr>
<tr>
<td></td>
<td>Effort spent in academic related activities</td>
<td>• Persistence to graduation</td>
<td>Work study programs</td>
</tr>
<tr>
<td></td>
<td>College GPA</td>
<td>• Pursuit of graduate studies</td>
<td>Multicultural education</td>
</tr>
<tr>
<td></td>
<td>Financial assistance</td>
<td>• Incorporation into the labor force</td>
<td>Workshops &amp; training on learning styles</td>
</tr>
</tbody>
</table>

Pathways to Postsecondary Education
The tale of two cohorts:

1. 1980 High school sophomore cohort
2. 1988 8th grader cohort
What are the chances for a high school sophomore to eventually secure a bachelor’s degree within 10 years?
Degree attainment by academic resources and first institution type for all students

Number of Students (1,913,269)

Academic Resources

First Institution of Attendance Type

Probability of Securing a 4-Year Degree

Low
11.8% (225,483)

4-Year
16.3% (36,653)

2-Year
57.5% (129,662)

Other
26.2% (59,168)

Medium
38.2% (730,759)

4-Year
31.3% (228,856)

2-Year
53.3% (389,713)

Other
15.4% (112,190)

High
50.0% (957,027)

4-Year
70.3% (672,914)

2-Year
24.3% (232,146)

Other
5.4% (51,967)

Degree attainment by academic resources and first institution type for Lowest-SES students

Number of Students (292,691)

Low
- 22.0% (64,567)

Medium
- 53.0% (155,037)

High
- 25.0% (73,087)

Academic Resources

First Institution of Attendance Type

4-Year
- Low: 14.2% (9,175)
- Medium: 27.7% (42,968)
- High: 49.9% (36,452)

2-Year
- Low: 51.3% (33,090)
- Medium: 47.4% (73,442)
- High: 39.4% (28,841)

Other
- Low: 34.5% (22,302)
- Medium: 24.9% (38,627)
- High: 10.7% (7,794)

Probability of Securing a 4-Year Degree

4-Year
- Other: 20.8%
- 2-Year: 26%
- 4-Year: 58.5%

2-Year
- Other: 3.3%

Other
- Other: 2.9%
- Other: 13.0%

Degree attainment by academic resources and first institution type for Highest -SES students:

- **Number of Students (1,179,749)**
  - Low: 7.3% (85,933)
  - Medium: 33.3% (392,521)
  - High: 59.4% (701,295)

- **Academic Resources**
  - First Institution of Attendance Type
    - 4-Year: 21.1% (18,135)
    - 2-Year: 59.0% (50,707)
    - Other: 19.9% (17,091)

- **Probability of Securing a 4-Year Degree**
  - 4-Year: 9.9%
  - 2-Year: 2.8%
  - Other: 2.7%
Most of what matters for degree completion are school-related factors:

1. Preparation for college
2. Educational aspirations
3. Type of 1st institution attended
4. Continuous enrollment
5. Number of college math & science courses taken
6. Collegiate experiences
7. Financial support
8. College GPA
9. Children
10. Socioeconomic resources
11. Percentage of college courses dropped, left incomplete, or withdrew

And, addressing those educational related factors can reduce the SES-gap.
Pathways to Postsecondary Education for Latino 8th graders
What percentage of 8th grade Latino students went on to postsecondary education after completion of high school?

1. 27%
2. 66%
3. 48%
4. 73%
5. Not a clue
Exhibit I-15. First Type of Postsecondary Institution Attended by 1988 8th-Grade NELS Latino and White Youth

<table>
<thead>
<tr>
<th>Institution Type</th>
<th>White</th>
<th>Latino</th>
</tr>
</thead>
<tbody>
<tr>
<td>No PSE</td>
<td>25</td>
<td>34</td>
</tr>
<tr>
<td>2-yr public</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>2-yr private</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>4-yr public</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>4-yr private</td>
<td>24</td>
<td>14</td>
</tr>
</tbody>
</table>
Among Latino 8th graders who became postsecondary education attendees, what percentage of them secured a bachelor’s degree?

1. 14%
2. 24%
3. 44%
4. 84%
5. Not a clue
Exhibit I-17. Distribution of 1988 8th-Grade NELS White and Latino Students by Highest Degree Attained by 2000

- None: 40 White, 65 Latino
- Certificate: 4 White, 3 Latino
- Associate’s: 8 White, 8 Latino
- Bachelor’s: 33 White, 17 Latino
- Graduate studies: 15 White, 7 Latino
Source: Swail, Cabrera & Lee (2004). Latino youth and the pathway to college
Middle school experiences
The role of planning & parental expectations for Latino middle school students

Exhibit III-5. Percent Change in the Probability of Completing a Four-Year Degree Due to Expectations and Aspirations

<table>
<thead>
<tr>
<th>Expectation Type</th>
<th>Baseline ps</th>
<th>Latino (23.2%)</th>
<th>White (47.3%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Planning Advanced Degree</td>
<td>2</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>Student Planning Bachelor's</td>
<td>4</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Student Planning Some College</td>
<td>8</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Parental Expectations--Advanced Degree</td>
<td>12</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Parental Expectations--Bachelor's</td>
<td>4</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Parental Expectations--Some College</td>
<td>-27</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

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The role of academic preparation

Exhibit III-6. Percent Change in the Probability of Completing a Four-Year Degree Due to Academic Preparation

<table>
<thead>
<tr>
<th>Course</th>
<th>Marginal Probability (Delta-p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academically Oriented H.S. Program</td>
<td>2***</td>
</tr>
<tr>
<td>Remedial English Courses</td>
<td>-26 **</td>
</tr>
<tr>
<td>Pre-Calculus and Calculus</td>
<td>12 **</td>
</tr>
<tr>
<td>Algebra II or Trigonometry</td>
<td>6 ***</td>
</tr>
</tbody>
</table>

Baseline ps
- Latino (23.2%)
- White (47.3%)

* = p<0.1
** = p<0.05
*** = p<0.01
Postsecondary experiences
Postsecondary experiences: Performance in college

Exhibit III-7. Percent Change in the Probability of Completing a Four-Year Degree Due to Postsecondary Activities

- College GPA of 3.20 - 4.00: 62% (Baseline), 45% (Latino), 42% (White)
- College GPA of 2.50 - 3.19: 47% (Baseline), 42% (Latino), 47% (White)
- Enrolled part time: -12% (Baseline), -19% (Latino), -12% (White)
- Delayed enrollment in postsecondary education: -20% (Baseline), -20% (Latino), -20% (White)
- Maintained continuous postsecondary enrollment: -25% (Baseline), -25% (Latino), -25% (White)
- Started at a 4-year institution: 35% (Baseline), 29% (Latino), 35% (White)

Baseline: 23.2% Latino, 47.3% White

Marginal Probability (Delta-p)
In Conclusion…

Latino students are much more likely to earn a BA or higher if they:

- are supported by their families in the pursuit of a postsecondary education
- create a plan by the eighth grade
- take three years of mathematics or more
- start at a four-year institution
- maintain continuous enrollment
- Earn a GPA of 2.50 or above
Thank you!
Recommended Readings

• McDonough. How social class and schools structure opportunity. In Stage et. al. Theoretical perspectives on college students (pp. 75-83).


Recommended Readings


Recommended Readings


• McDonough. *How social class and schools structure opportunity*. In Stage et. al. *Theoretical perspectives on college students* (pp. 75-83).
Additional Material to be shown if time permits or as a result of Q&A
College Persistence as a Longitudinal Process

College Decision → College Experiences → College Outcomes

- Family Encouragement & Involvement
- Preparation for College
- K-16 Communication & Engagement
- Aspirations & Plans
- Awareness of College Characteristics, Admission Standards, & Costs

- Academic Integration
- Social Integration
- Facilities & Services
- Climate & Diversity

- Competencies
- Satisfaction & Commitment
- Persistence Transfer Stop-out
- Degree Completion

- Graduate School
- Employment & Income
- Job Performance
- Job Satisfaction
- Loan Repayment

Who’s in the Colorado college pipeline

For every 100 Colorado 9th grader,
• 85 graduate from high school
• 37 immediately enroll in college
• 75 are still enrolled their sophomore year
• 53 graduate within 6 years if enrolled full time

• Based on Measuring UP 2004 State Report Card for Colorado

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## Persistence to Degree Completion
### Six Year Graduation Rates in 2003

<table>
<thead>
<tr>
<th>Institution</th>
<th>Colorado</th>
<th>Peer Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>Latinos</td>
</tr>
<tr>
<td>Colorado State U.</td>
<td>62.1</td>
<td>58.7</td>
</tr>
<tr>
<td>Fort Lewis C.</td>
<td>31.1</td>
<td>31.0</td>
</tr>
<tr>
<td>Mesa State C.</td>
<td>28.1</td>
<td>24.6</td>
</tr>
<tr>
<td>Metro</td>
<td>19.7</td>
<td>11.6</td>
</tr>
<tr>
<td>UC-Boulder</td>
<td>67.8</td>
<td>57.0</td>
</tr>
<tr>
<td>UC-Colorado Springs</td>
<td>38.9</td>
<td>40.5</td>
</tr>
<tr>
<td>UC-Denver</td>
<td>39.2</td>
<td>33.7</td>
</tr>
<tr>
<td>UC-Pueblo</td>
<td>31.7</td>
<td>27.3</td>
</tr>
<tr>
<td>UNC</td>
<td>47.1</td>
<td>34.4</td>
</tr>
<tr>
<td>Western SC</td>
<td>30.8</td>
<td>11.1</td>
</tr>
<tr>
<td>University of Denver</td>
<td>70.5</td>
<td>63.3</td>
</tr>
</tbody>
</table>

Source: 2005 Education Trust. College Results on Line

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Academic Resources among Colorado 8th graders

2003 Colorado State Assessment Program (CSAP) Grade 8 Math

2003 Colorado NAEP Grade 8 Math

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## Colorado High School & College Success

<table>
<thead>
<tr>
<th></th>
<th>Population, age 5-24</th>
<th>Public K-12</th>
<th>Two Year Colleges</th>
<th>Four Year Colleges</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td>4%</td>
<td>6%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>Asian</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Latino</td>
<td>20%</td>
<td>23%</td>
<td>15%</td>
<td>8%</td>
</tr>
<tr>
<td>Native American</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>White</td>
<td>60%</td>
<td>67%</td>
<td>69%</td>
<td>72%</td>
</tr>
<tr>
<td>Other</td>
<td>13%</td>
<td>N/A</td>
<td>5%</td>
<td>13%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Number</td>
<td>1,385,583</td>
<td>742,145</td>
<td>162,291</td>
<td>232,025</td>
</tr>
</tbody>
</table>
Colorado

Average Annual Growth in State Spending on K-12 and Higher Education, 2001-2003

Source: The Education Trust • EdWatch Online 2004 State Summary Reports • www.edtrust.org

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Policy Implications

Middle School
– College Knowledge
– Aspirations/Motivation
– Parental Expectations
– Having a Plan
Policy Implications

High School

– Algebra I by 9th Grade
– Remedial English
– Advising/Counseling
– Continuous Enrollment
Policy Implications

Postsecondary Education

- Continuous Enrollment
- Academic Support/Safety Nets
- Academic Performance (GPA)
- Financial Aid
Intervention strategies need to be *Holistic, Sustained* over time and involve *Multiple Partners*

- Elementary Schools
- Middle Schools
- Two-Year Institutions
- Four-Year Institutions
- Business organizations
- Community organizations
- PTAs
- GEAR-UP
- TRIO

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Critical tasks for members of the 1988 8th grade cohort who are minority.
At Risk Factors

1. Raised by single parent
2. Parents with no High school degree
3. Having siblings who dropout from HS
4. Being home alone for more than 3hrs
5. Limited English proficiency
6. Family income less than $15,000
7. Held back in school
8. Changed HS more than twice
9. Having a C or less GPA
10. Having children during HS years

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<table>
<thead>
<tr>
<th>1988 eight graders</th>
<th>Latinos</th>
<th>African Americans</th>
<th>Whites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents with some college</td>
<td>47.4%</td>
<td>61.8%</td>
<td>72.9%</td>
</tr>
<tr>
<td>Percent showing at-risk factors:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Held back one grade</td>
<td>20.6%</td>
<td>27.5%</td>
<td>15.4%</td>
</tr>
<tr>
<td>• Single parent family</td>
<td>20.6%</td>
<td>46.4%</td>
<td>16.9%</td>
</tr>
<tr>
<td>• Siblings dropping out from HS</td>
<td>20.5%</td>
<td>20.7%</td>
<td>12.2%</td>
</tr>
<tr>
<td>• Changing schools more than twice</td>
<td>32.5%</td>
<td>35.6%</td>
<td>28.5%</td>
</tr>
<tr>
<td>• Averaging C or less</td>
<td>44.4%</td>
<td>47.1%</td>
<td>33.6%</td>
</tr>
</tbody>
</table>

Based on National Educational Longitudinal Study 1988
On the path to college
1988 eight graders

Based on National Educational Longitudinal Study 1988
What to assess & when to do it?
<table>
<thead>
<tr>
<th>Preparation for College</th>
<th>Collegiate Experiences</th>
<th>Graduation/Post College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle School Aspirations &amp; readiness (7th –10th)</td>
<td>High School Application &amp; readiness (11th-12th)</td>
<td>Freshman Year</td>
</tr>
<tr>
<td><strong>School information &amp; transcript</strong>&lt;br&gt;Academic Resources&lt;br&gt;School district profile</td>
<td><strong>School information &amp; transcript</strong>&lt;br&gt;Academic Resources&lt;br&gt;School district profile</td>
<td><strong>Campus information &amp; transcripts</strong>&lt;br&gt;Enrollment information&lt;br&gt;Financial aid data&lt;br&gt;Campus profile</td>
</tr>
<tr>
<td><strong>Student Survey</strong>&lt;br&gt;Family education&lt;br&gt;Occupation&lt;br&gt;Encouragement&lt;br&gt;Family involvement&lt;br&gt;Saving for college&lt;br&gt;Aspirations&lt;br&gt;Plans &amp; intentions</td>
<td><strong>Student Survey</strong>&lt;br&gt;Family education&lt;br&gt;Knowledge of careers&lt;br&gt;Family involvement&lt;br&gt;Information about universities&lt;br&gt;Plans &amp; intentions&lt;br&gt;Transfer plans&lt;br&gt;Intended major&lt;br&gt;Inquire process</td>
<td><strong>Student survey</strong>&lt;br&gt;Orientation &amp; advisement&lt;br&gt;Remediation&lt;br&gt;Faculty &amp; peer interactions&lt;br&gt;Classroom &amp; learning experiences&lt;br&gt;Family &amp; work responsibilities&lt;br&gt;Faculty survey</td>
</tr>
</tbody>
</table>