The Hitchhiker’s Guide to Guided Pathways

Redesigning Community Colleges
Bakersfield College

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John Hetts
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Engagement

Do you know your mascots?
Overview

• Guided pathways: Meaningful metaphors
• Clear the brush & set the stage
• Fire-tested Pathways Practices
  • Multiple Measures
  • Acceleration
    • English acceleration & curricular redesign
    • Statistics pathways
    • Co-requisite acceleration
• Q&A
How are we talking when we are talking about Guided Pathways?

- Academic Momentum & Academic Velocity
- Acceleration
- Institutional throughput rate
- Pathways completion cost
How are we talking when we are talking about Guided Pathways?

• Academic Momentum & Academic Velocity
  • Momentum helps to transition, persist or cross a divide
  • Velocity: Progress along a **pathway** over time toward a goal
  • Guided pathway: A clear sequence of courses leading to a degree or certificate
• Lesson of the Basic Skills Cohort Progress Tracker
• **Structure** affects progression
• The design of a model pathway calls for a “light” touch
• *It’s not just about earning units, it’s about earning the right units*
Importance of institutional throughput rate

Scenario 1: Student Progression Under the Conventional Placement System

10,000 students enter college

- 3,000 students assigned to college-level
  - 2,250 students pass (75%)
  - 750 students fail
- 7,000 students assigned to developmental
  - 2,800 students pass to college-level (40%)
  - 4,200 students fail
  - 1,960 students pass (70%)
  - 840 students fail

42% Overall College-Level Pass Rate
Importance of institutional throughput rate

Scenario 2: Student Progression Under a More Accurate Placement System

- 10,000 students enter college
- 50% assigned to remediation
  - 5,000 students assigned to college-level
    - 3,750 students pass (75%)
    - 1,250 students fail
  - 5,000 students assigned to developmental
    - 2,000 students pass to college-level (40%)
      - 1,400 students pass (70%)
      - 600 students fail
    - 3,000 students fail

52% overall college-level pass rate
Clearing the brush/building the trailhead

• Successful pathways through college requires trailheads that are clear and easy to access.

• Important to:
  • Clear unnecessary obstacles
  • Beware barriers to entry
  • Maintain trailhead
  • Build from existing (and functional) pathways
Trying to avoid trailheads that feel like

**Dimrill Stairs and the Bridge of Khazad Dum**

**Grand Staircase of Hogwarts**
Want to build trailheads like:

- Limpy Creek Trailhead
  - Well-integrated with point of access
  - Clear and direct path to trail
  - Ample maps, guidance, and information
  - Multiple types of optional support structures available for those who need it
Clearing the brush

Lessons from Long Beach Promise Pathways
Examined predictive utility of wide range of high school achievement data for predicting:

- How students are assessed and placed
- How students perform in those classes
- (and alignment between them)
Alignment in English

**Predicting Placement**

<table>
<thead>
<tr>
<th>Ordinal Regression Coefficients</th>
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<tbody>
<tr>
<td>CST ELA (z)</td>
</tr>
<tr>
<td>1.34*</td>
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**Predicting Performance**

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<th>Logistic Regression Coefficients</th>
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<tr>
<td>CST ELA (z)</td>
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<td>.17*</td>
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*p < .05, **p < .01, ***p < .001, x = p < 1 x 10^{-10}
Alignment in Math

Predicting Placement

Ordinal Regression Coefficients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
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</thead>
<tbody>
<tr>
<td>CST Math (z)</td>
<td>0.75</td>
</tr>
<tr>
<td>Last Math Grade</td>
<td>0.20</td>
</tr>
<tr>
<td>HSGPA</td>
<td>0.00</td>
</tr>
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</table>

Predicting Performance

Logistic Regression Coefficients

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<tr>
<th>Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>CST Math (z)</td>
<td>0.73</td>
</tr>
<tr>
<td>Last Math Grade</td>
<td>0.20*</td>
</tr>
<tr>
<td>HSGPA</td>
<td>0.25**</td>
</tr>
</tbody>
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* p < .05 **, p < .01, *** p < .001, x = p < 1 x 10^{-10}
Key Takeaways

- Assessment **should** predict **how students will perform at our colleges**

- **Instead:**
  - Previous standardized tests predict later standardized tests
  - Previous classroom performance predicts later **classroom performance**
  - More information tells us more about student capacity than less information
Re-imagined student capacity

- Starting in Fall 2012, students from LBUSD were provided an alternative assessment
  - (now 6 districts covering >30 high schools and growing)

- Reverse engineered analysis to place students using:
  - Overall HSGPA
  - Last high school course in discipline
  - Grade in last course in discipline
  - Last standardized test in discipline (and level)

- Placed students in highest course where predicted success rate higher than average success rate for that course.

- Built semester plans with those placements and courses pre-populated
Implementing Multiple Measures Placement: LBCC Transfer-level Placement Rates

- Transfer Level English:
  - F2011 First time students: 11%
  - F2011 LBUSD: 13%
  - F2012 Promise Pathways - Accuplacer Only: 14%

- Transfer Level Math:
  - F2011 First time students: 7%
  - F2011 LBUSD: 9%
  - F2012 Promise Pathways - Multiple Measures: 9%

Overall:
- Transfer Level English: 60%
- Transfer Level Math: 31%
Not just opening the gates: Success rates in transfer-level courses by entry type

Cohort One, F2012

- English: Non-Pathways 64%, Promise Pathways 62%
- Math: Non-Pathways 55%, Promise Pathways 51%

Cohort Three: F2014

- English: Non-Pathways 67%, Promise Pathways 79%
- Math: Non-Pathways 49%, Promise Pathways 49%

Neither of these differences approach significance, $p > .30$

English difference, $p < .001$
Equity impact LBCC: F2011 Baseline Equity Gaps for 2-year rates of achievement

Transfer Math Successful Completion:
- F11 African Americans: 4%
- F11 Hispanic: 12%
- F11 Asian: 21%
- F11 White: 18%

Transfer English Successful Completion:
- F11 African Americans: 13%
- F11 Hispanic: 25%
- F11 Asian: 24%
- F11 White: 34%

English 3 Successful Completion:
- F11 African Americans: 2%
- F11 Hispanic: 3%
- F11 Asian: 1%
- F11 White: 6%

Behavioral Intent to Transfer:
- F11 African Americans: 15%
- F11 Hispanic: 32%
- F11 Asian: 33%
- F11 White: 41%
Equity impact LBCC: F2012 2-year rates of achievement

![Bar chart showing rates of achievement by ethnicity for different categories.](chart.png)
\[ y = f(x) \]
STEPS to MMAP


- 2011: Long Beach City College utilizes CalPASS data to redesign placement and develop replication infrastructure [http://www.lbcc.edu/PromisePathways/](http://www.lbcc.edu/PromisePathways/)


Multiple Measures Assessment Project

• Examination of HS achievement for predictors of successful completion of English & math
• Focus on predictive validity (success in course) and improving completion of sequence or throughput
• Integration with the Common Assessment Initiative
• Statewide support
  • Research base, predictive analytics, decision tree models
  • Pilot colleges and faculty/staff engagement
    • Webinars, convenings/summits, professional development
  • K-12 outreach and data population
  • Data warehouse and tool development
Growing Interest and Scale

- Colleges continue to join the project and enthusiastically inquire about participating
  - 41 pilot colleges now committed, 8 more at various stages of exploration, representing more than:
    - >900,000 community college students
    - >40% of community college students statewide
    - >8% of all community college students nationally
  - 11 had pilots in place in Fall 2015
  - 10 additional colleges are already matching for Spring 2016
High school variables that predict success in college-level courses

• **English**
  - **Cumulative HS GPA**
  - Grade in last HS English
    - C+ or better in AP English class
  - Score on English CST
  - Non-remedial status in HS English

<table>
<thead>
<tr>
<th>English Level</th>
<th>Rule</th>
</tr>
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<tbody>
<tr>
<td>Transfer</td>
<td>HS 12 GPA &gt;= 2.6</td>
</tr>
<tr>
<td>One level below Transfer</td>
<td>HS 12 GPA &gt;= 2.2 AND HS 12 English course GP &gt;= 1.8</td>
</tr>
</tbody>
</table>

• **Math**
  - **Cumulative HS GPA**
  - Enrollment and grades in Geometry, Algebra II, Trigonometry, Pre-calculus, Statistics, Calculus
  - Taking a more challenging CST
  - Score on math CST
  - Delay*

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<tbody>
<tr>
<td>College Algebra</td>
<td>HS GPA &gt;= 3.2 OR HS GPA &gt;= 2.9 AND Pre-Calculus C or better</td>
</tr>
<tr>
<td>Intermediate Algebra</td>
<td>HS 12 GPA &gt;= 2.9 OR HS 12 GPA &gt;= 2.5 AND Algebra II CST &gt;= 302</td>
</tr>
</tbody>
</table>
Potential Statewide Transfer Level Placement

Percent Transfer Level Placement

<table>
<thead>
<tr>
<th>Subject</th>
<th>Current</th>
<th>Disjunctive MM</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>38%</td>
<td>61%</td>
</tr>
<tr>
<td>(n=103,510)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math</td>
<td>31%</td>
<td>42%</td>
</tr>
<tr>
<td>(n=143,253)</td>
<td></td>
<td></td>
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Projected impact on course success rates
(completion of course with C or better)

Historic success rate vs. Projected success rate

- **Transfer-level Math**
  - Historic: 62%
  - Projected: 72%

- **Transfer-Level English**
  - Historic: 62%
  - Projected: 71%
Transfer Level English Placement

- **Afr Am**: Current 24% / Disjunctive MM 40%
- **Latino**: Current 30% / Disjunctive MM 51%
- **Asian**: Current 41% / Disjunctive MM 73%
- **White**: Current 53% / Disjunctive MM 74%
Transfer Level Math Placement

Afr Am: 15% Current, 22% Disjunctive MM
Latino: 21% Current, 32% Disjunctive MM
Asian: 41% Current, 53% Disjunctive MM
White: 51% Current, 65% Disjunctive MM
Acceleration

Results from the California Acceleration Project
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-R² = 0.14
Equity impacts at one college

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

WR 201 & 301:
- Overall rate: 48%
- Asian Americans: 58%
- African Americans: 23%

EXP 389:
- Overall rate: 69%
- Asian Americans: 70%
- African Americans: 60%
Co-requisite Acceleration

Compelling results from across the country

For students placed one level below in English, the Accelerated Learning Program (ALP) model involves:

- Enrollment directly in college-level English (mainstreamed)
- Concurrent enrollment in just-in-time companion developmental English course taught by same instructor

- Coleman (2015) reviewed the results of four early implementers outside CCBC at or near institutional scale
- CCA (2016) reviews results of corequisite efforts at or near statewide scale
Coleman, 2015: Completion of College-Level English

% successfully transferring

Colleges

- College 1: 36% (Baseline), 78% (ALP Model)
- College 2: 34% (Baseline), 78% (ALP Model)
- College 3: 37% (Baseline), 62% (ALP Model)
- College 4: 50% (Baseline), 78% (ALP Model)

Among those enrolled in one-level below course.
Coleman, 2015: Completion of College-Level English

Percent successfully completing transfer level

College 1: Baseline B/H 25% Baseline W 42% ALP B/H 80% ALP W 70%
College 2: Baseline B/H 29% Baseline W 37% ALP B/H 66% ALP W 66%
College 3: Omitted from chart due to small sample size (14) for B/H
College 4: Baseline B/H 46% Baseline W 55% ALP B/H 76% ALP W 76%
CCA, 2016: Gateway course completion at public two-year colleges

Successful Completion of Transfer-Level Course: Math

- National Average: 22%
- West Virginia Pre-reform (2 years): 14%
- West Virginia Co-Requisite (1 semester): 12%
- Tennessee Pre-reform (2 years): 63%
- Tennessee Co-Requisite (1 semester): 61%

Successful Completion of Transfer-Level Course: English

- National Average: 22%
- West Virginia Pre-reform (2 years): 37%
- West Virginia Co-Requisite (1 semester): 31%
- Tennessee Pre-reform (2 years): 68%
- Tennessee Co-Requisite (1 semester): 64%

*Among students enrolling in remediation.*
Increasing Access to Transfer-Level Courses

Natural experiment at Butte College

• In 2011, switched from one placement test to another

• Old test/cut scores:
  • 23% of incoming students “college ready” in English

• New test/cut scores:
  • 48% of incoming students “college ready” in English
Developmental Math Reform – Virginia Community College System

- Intentionally increased percentage assigned to college-level math
- *(Also, introduced new assessment instrument, redesigned remedial math into modular setup, increased alignment of math to educational goals)*
VCCS Combination of Increased Access and Corequisite Expansion

**Placement into College English**

- Pre-reform, F2010: 43%
- Post-reform, F2013: 58%

**Completion of College English in first year**

- Pre-reform, F2010: 3%
- Post-reform, F2013: 11%
Converging bodies of evidence for clearing the path to college-level work

- **Two to five** times transfer-level course completion
- Comparable or higher success rates
- Works across demographic groups & placement levels
- Tremendous equity implications

- Evidence-based assessment, placement and redesign of development education provides a true on-ramp into college programs and college-level work
What might this mean for students? Considerations for Pathway Completion Costs

• These strategies save students 1-2 semesters of developmental education on average

• Direct costs
  • $200-$250 per course for student (~$50/unit +books!)
  • $800-$1000 per course for state (~$200/unit NR fees)

• Opportunity costs even higher
  • Median 2012 salary of “some college” is ~$30,000/year
  • Students don’t lose first or median year, they lose either:
    • their last year of salary or
    • the opportunity to retire earlier.
Opportunity to change the future of the California Community Colleges

Sense of Scale

• According to the BLS, the Great Recession of 2008 took ~1,000,000 out of the California workforce for a year or more.

• 2.4 million California community college students have lost up to an additional year of time out of the workforce and/or have become less likely to complete their education.

Fierce Urgency of Now

• ~500,000 new community college students in California every year

• “We are now faced with the fact that tomorrow is today. We are confronted with the fierce urgency of now. In this unfolding conundrum of life and history, there "is" such a thing as being too late. This is no time for apathy or complacency. This is a time for vigorous and positive action.”
  • Dr. Martin Luther King, Jr.
Thank you!

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