Pathway Project Overview

- Partners (secondary and post-secondary) from all levels of education agree to share student level data.
- Partners assign faculty members from all levels to meet on a monthly basis.
- The data is then used to generate reports for faculty teams.
- The faculty teams use the data to fuel interventions designed to increase student success.
Data Collection Process

MOU → Development of the Reporting Manual → Data Collection
Data Collected

- Enrollment
- Course (grades included)
- Graduation Data

- Reporting Manuals
  http://www.txhighereddata.org/ReportingManuals.cfm
Faculty Reports

- The first faculty reports were designed to match CAL-PASS reports.
- CAL-PASS’s reporting methods are “time tested”.
- The reports are basically a simple student-course to student-course match.
Faculty Reports (Cont.)

- Find a student’s highest high school course in a subject area
- Link the student’s data to higher education data
- Find the first course the student took in higher education
Faculty Reports - Alignment Reports

- Alignment reports are designed to illustrate possible gaps in secondary/post-secondary alignment.
Faculty Reports - Alignment Reports (Cont.)

H.S. Pre-Calculus

College Calculus

College Pre-Calculus

Below College Pre-Calculus
Faculty Reports

- Cohort Studies
- Predictive modeling
- Special Topic Reports
  - Study Skills
  - Dual Credit
  - Developmental Education
- Outcome reports
- Survey results
THECB generates reports

Faculty teams request more data

Faculty/Partners review reports

Faculty Teams develop possible interventions

Faculty Report Cycle
Faculty Reports

- Giving faculty reports at the ISD level is important to the Pathways process.
  - Understanding how different student populations affect alignment
  - Understanding how successful ISD projects are effecting current alignment
- Pathways project does not compare ISD’s.
- It only evaluates Pathways’ interventions.
Faculty Teams

- Faculty Teams are focused around local need for vertical alignment.
- San Antonio and Houston Faculty Teams
  - Mathematics
  - English
  - U.S. History (Social Sciences)
  - Biology/Chemistry (Sciences)
Faculty Teams

- Faculty teams are supported by a regional coordinator, the THECB, and Cal-PASS.
- Faculty teams meet once a month.
- Initially, faculty teams meetings center around team organization and faculty reports.
- Then, faculty teams are charged with development of interventions for all education levels to better align secondary and post-secondary.
The Goal of the Pathway Process

- Faculty teams design/ change interventions
- Interventions are evaluated using data.
- Faculty teams start interventions
THE DATA
THE ALGEBRA 2
First College Math Course at a 2-year institution for Students who passed Algebra 2 in High School

88.3% Start in D.E.
First College Math Course at a 2-year institution for Students who earned an “A” in Algebra 2

- Basic Math: 73.5% Start in D.E.
First College Math Course at a 2-year institution for Students who earned a “B” in Algebra 2

84.7% Start in D.E.
First College Math Course at a 2-year institution for Students who earned a “C” in Algebra 2

91.8% Start in D.E.
First College Math Course at a 2-year institution for Students who took Algebra 2 in High School by Course Grade

![Bar Chart]

- Basic Math
- Intermediate Algebra
- College Algebra
- Pre-Calculus
- Calculus
- Other

Grade Distribution:
- A
- B
- C
Overall Success Rates in First College Math Course at a 2-year institution for Students who took Algebra 2 in High School by Course Grade
First College Math Course at a 4-year institution for Students who passed Algebra 2 in High School

59.2% Start in D.E.
First College Math Course at a 4-year institution for Students who earned an “A” in Algebra 2

44.9% Start in D.E.
First College Math Course at a 4-year institution for Students who earned a “B” in Algebra 2

54.1% Start in D.E.
First College Math Course at a 4-year institution for Students who earned a “C” in Algebra 2

67.0% Start in D.E.
First College Math Course at a 4-year institution for Students who took Algebra 2 in High School by Course Grade
Overall Success Rates in First College Math Course at a 4-year institution for Students who took Algebra 2 in High School by Course Grade

- Basic Math: 90% A, 60% B, 50% C
- Intermediate Algebra: 70% A, 55% B, 50% C
- College Algebra: 80% A, 60% B, 50% C
- Pre-Calculus: 60% A, 40% B, 30% C
- Calculus: 50% A, 40% B, 30% C
- Other: 30% A, 20% B, 10% C
MATH COHORT STUDY
Math Cohort Study - Methods

- Using 5 of the school district’s, we tracked the 2005-2006 graduation cohort back 4 years in High School and forward 2 years in Higher Education.
- Only students who could be found for 4 years in H.S. were included.
Participants

- A total of 9918 students in the FY2006 H.S Graduation cohort.
- 409(4%) students were non-trackable.
  - Latinos were disproportionately more likely to be removed ($\chi^2 (4)=114.6$, $p<.0001$).
  - The economically disadvantaged were disproportionately more likely to be removed ($\chi^2 (1)=114.7$, $p<.0001$).
- Then, 1200 (12.6%) students removed for not having 4 years of H.S. in the database.
  - Latinos and African-Americans were disproportionately more likely to be in this group ($\chi^2(4)=118.6$, $p<.0001$).
Participants

- The total sample was 8,309 students.
- 50.7% were female.
- 63.1% were Hispanic, 27.5% white, 7.4% black, 1.9% Asian, and 0.1% Native American.
- 50.5% were economically disadvantaged.
- 72.8% received a recommended H.S. Diploma, 11.1% minimum, 7.9% IEP, and only 8.2% distinguished.
## H.S. Course Taking Patterns
### FY2006 Cohort

<table>
<thead>
<tr>
<th>Alg. 1</th>
<th>Math Models</th>
<th>Geo.</th>
<th>Alg. 2</th>
<th>Stats</th>
<th>Pre-Calc</th>
<th>Calc</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
<td>7.7%</td>
</tr>
<tr>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>621</td>
<td>7.7%</td>
</tr>
<tr>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>198</td>
<td>2.5%</td>
</tr>
<tr>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>1029</td>
<td>12.8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>748</td>
<td>9.3%</td>
</tr>
<tr>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2722</td>
<td>33.9%</td>
</tr>
<tr>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>1103</td>
<td>13.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>478</td>
<td>6.0%</td>
</tr>
<tr>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>190</td>
<td>2.4%</td>
</tr>
<tr>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>178</td>
<td>2.2%</td>
</tr>
</tbody>
</table>
TAKS TEST

- Analysis - Linear Regression
- N = 7,254
- Outcome Variable:
  - Exit Level Math TAKS Test
- Predictor Variables:
  - Course Taking behavior (9 was the reference group)
  - Gender (female was the reference group)
  - Economically Disadvantaged (not disadvantaged was the reference group)
- The overall model was significant, (F(10, 6682) = 560.97, p < .0001).
- Approximately, 45.6% variance in the TAKS Math was explained by the predictor variables.
# TAKS Test

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>Significance at p&lt;.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2214.9</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>36.12</td>
<td>S</td>
</tr>
<tr>
<td>Economically Disadvantaged</td>
<td>-76.1</td>
<td>S</td>
</tr>
<tr>
<td>A- Course taking Pattern</td>
<td>248.54</td>
<td>S</td>
</tr>
<tr>
<td>B- Course taking Pattern</td>
<td>309.74</td>
<td>S</td>
</tr>
<tr>
<td>C- Course taking Pattern</td>
<td>71.48</td>
<td>S</td>
</tr>
<tr>
<td>D- Course taking Pattern</td>
<td>121.00</td>
<td>S</td>
</tr>
<tr>
<td>E- Course taking Pattern</td>
<td>-16.71</td>
<td>ns</td>
</tr>
<tr>
<td>F- Course taking Pattern</td>
<td>-57.36</td>
<td>ns</td>
</tr>
<tr>
<td>G- Course taking Pattern</td>
<td>-0.33</td>
<td>ns</td>
</tr>
<tr>
<td>H- Course taking Pattern</td>
<td>-122.18</td>
<td>S</td>
</tr>
</tbody>
</table>
TAKS Test

- Students who take Course Patterns ending in Pre-Calculus or Calculus perform better on the TAKS than students with ending in Algebra 2 even after the effects of SES and gender are removed.
College Going Behavior

- Analysis - Logistic Regression
- N = 7,254
- Outcome Variable:
  - Found in College Vs. Not Found in College
- Predictor Variables:
  - Course Taking behavior (9 was the reference group)
  - Gender (female was the reference group)
  - Economically Disadvantaged (not disadvantaged was the reference group)
- The overall model was significant, ($\chi^2 (10) = 918.5$, $p < .0001$).
## College Going Behavior

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Odds of Going to College</th>
<th>Significance at p&lt;.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0.77</td>
<td>S</td>
</tr>
<tr>
<td>Economically Disadvantaged</td>
<td>0.57</td>
<td>S</td>
</tr>
<tr>
<td>A- Course taking Pattern</td>
<td>6.34</td>
<td>S</td>
</tr>
<tr>
<td>B- Course taking Pattern</td>
<td>6.75</td>
<td>S</td>
</tr>
<tr>
<td>C- Course taking Pattern</td>
<td>4.92</td>
<td>S</td>
</tr>
<tr>
<td>D- Course taking Pattern</td>
<td>4.16</td>
<td>S</td>
</tr>
<tr>
<td>E- Course taking Pattern</td>
<td>1.30</td>
<td>ns</td>
</tr>
<tr>
<td>F- Course taking Pattern</td>
<td>0.87</td>
<td>ns</td>
</tr>
<tr>
<td>G- Course taking Pattern</td>
<td>0.92</td>
<td>ns</td>
</tr>
<tr>
<td>H- Course taking Pattern</td>
<td>0.34</td>
<td>S</td>
</tr>
</tbody>
</table>
College Going Behavior

- Students who take Course Patterns ending in Pre-Calculus or Calculus were more likely to go to college than students with ending in Algebra 2 even after the effects of SES and gender are removed.
Level of Developmental Education

- Analysis - Logistic (Multinomial) Regression
- N = 3,096
- Outcome Variable: Starting Math Level at ACCD

<table>
<thead>
<tr>
<th>Coding</th>
<th>Math Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lowest Level of DE</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Highest level of DE</td>
</tr>
<tr>
<td>5</td>
<td>Credit Bearing Course</td>
</tr>
</tbody>
</table>
Level of Developmental Education

- Predictor Variables:
  - Course Taking behavior (9 was the reference group)
  - Gender (female was the reference group)
  - Economically Disadvantaged (not disadvantaged was the reference group)

- The overall model was significant, \( \chi^2 (10) = 1443.0, p < .0001 \).
# Level of Developmental Education

<table>
<thead>
<tr>
<th>Course taking Pattern</th>
<th>Odds of being in a higher level of DE</th>
<th>Significance at p&lt;.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1.3</td>
<td>S</td>
</tr>
<tr>
<td>Economically Disadvantaged</td>
<td>0.27</td>
<td>S</td>
</tr>
<tr>
<td>A- Course taking Pattern</td>
<td>31.5</td>
<td>S</td>
</tr>
<tr>
<td>B- Course taking Pattern</td>
<td>48.7</td>
<td>S</td>
</tr>
<tr>
<td>C- Course taking Pattern</td>
<td>4.3</td>
<td>S</td>
</tr>
<tr>
<td>D- Course taking Pattern</td>
<td>4.4</td>
<td>S</td>
</tr>
<tr>
<td>E- Course taking Pattern</td>
<td>0.83</td>
<td>ns</td>
</tr>
<tr>
<td>F- Course taking Pattern</td>
<td>0.40</td>
<td>S</td>
</tr>
<tr>
<td>G- Course taking Pattern</td>
<td>1.1</td>
<td>ns</td>
</tr>
<tr>
<td>H- Course taking Pattern</td>
<td>0.20</td>
<td>S</td>
</tr>
</tbody>
</table>
Level of Developmental Education

- Students who take Course Patterns ending in Pre-Calculus or Calculus were more likely to be placed in credit bearing courses than students with ending in Algebra 2 even after the effects of SES and gender are removed.
Level of Developmental Education- UTSA

- Analysis - Logistic (Multinomial) Regression
- N= 462
- Outcome Variable: Starting Math Level at UTSA

<table>
<thead>
<tr>
<th>Coding</th>
<th>Math Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lowest Level of DE</td>
</tr>
<tr>
<td>2</td>
<td>Highest level of DE</td>
</tr>
<tr>
<td>3</td>
<td>Credit Bearing Course</td>
</tr>
</tbody>
</table>
Level of Developmental Education

- Predictor Variables:
  - Course Taking behavior (G, H, and I were the reference group)
  - Gender (female was the reference group)
  - Economically Disadvantaged (not disadvantaged was the reference group)

- The overall model was significant, ($\chi^2(7)=109.1$, $p<.0001$).
# Level of Developmental Education

<table>
<thead>
<tr>
<th>Course taking Pattern</th>
<th>Odds of being in a higher level of DE</th>
<th>Significance at p&lt;.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1.8</td>
<td>S</td>
</tr>
<tr>
<td>Economically Disadvantaged</td>
<td>0.30</td>
<td>S</td>
</tr>
<tr>
<td>A- Course taking Pattern</td>
<td>4.2</td>
<td>S</td>
</tr>
<tr>
<td>C- Course taking Pattern</td>
<td>0.75</td>
<td>ns</td>
</tr>
<tr>
<td>D- Course taking Pattern</td>
<td>0.49</td>
<td>ns</td>
</tr>
<tr>
<td>E- Course taking Pattern</td>
<td>0.30</td>
<td>S</td>
</tr>
<tr>
<td>F- Course taking Pattern</td>
<td>.15</td>
<td>S</td>
</tr>
</tbody>
</table>
Level of Developmental Education

- Students who take Course Patterns ending in Calculus were more likely to be placed in credit bearing courses than students with ending in Algebra 2 even after the effects of SES and gender are removed.
Conclusions

- For this region, Algebra 2 does not predict success placement into a college credit bearing course.
Future Research Plans

- Linking Pathway’s Data to other research projects at ACCD
- Dual Credit studies
- English Study
- STEM Studies
- El Paso Pathways
- Houston Pathways
- Statewide Pathways?
THECB Contacts

- Contact us.

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