Leading Indicators of Student Success
Why Leading Indicators?

- A2S systems have set ambitious goals to cut access and success gaps by 2015
- But, traditional outcome measures lag, making it difficult to track progress toward the goals now
  - Retention
  - Transfer
  - Graduation
Traditional Measures are Insufficient

- Limited to first time students and at the institution where the student first enrolled

- Offer no guidance on where and why students fall off the pathway to degree completion

- Fail to provide guidance for practice and policy to improve degree completion
## Correlates of Student Success from Research

### Student Demographics

Characteristics of students and their families related to graduation:

- Higher income
- Parent completed college
- Good academic preparation
- Enroll soon after high school

### College Experiences

Achievements during college provide momentum toward completion:

- Course participation
- Course performance
- Participation in support programs for new students
### Course Participation

- Remedial Coursework
- Gateway Courses
- General Education

<table>
<thead>
<tr>
<th>Course Type</th>
<th>CCC Cohort</th>
<th>SUSF Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete CL Math in 2 years</td>
<td>61</td>
<td>76</td>
</tr>
<tr>
<td>Complete CL English in 2 years</td>
<td>22</td>
<td>69</td>
</tr>
<tr>
<td>Complete CL Math Year 1</td>
<td>51</td>
<td>40</td>
</tr>
<tr>
<td>Complete CL English Year 2</td>
<td>21</td>
<td>33</td>
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</table>

Source: Advancing By Degrees: A Framework for College Completion
Course Performance

Excessive withdrawal
Course completion ratio
Credit accumulation
GPA

Probability of Completion by First Year Credits Earned

Source: Advancing By Degrees: A Framework for College Completion
Course Performance

Excessive withdrawal
Course completion ratio
Credit accumulation
GPA

Probability of Completion Based on Early Credit Accumulation

- Met Threshold
- Did not Meet Credit Threshold

Source: Advancing By Degrees: A Framework for College Completion
Support Programs

First Year Experience Programs
Orientation Courses
Learning Communities

Percentage of Remedial Students Who Succeeded After Five Years

- **Awards Earned**
  - SLS: 22
  - No SLS: 15

- **Transfer**
  - SLS: 14
  - No SLS: 7

- **Still Enrolled**
  - SLS: 39
  - No SLS: 23

- **Academic Success**
  - SLS: 53
  - No SLS: 33

Source: Florida Community College Student Database 99-00 through 03-04
A Better Framework for Identifying Reasons for Insufficient Graduation Rates

- **Milestones**: Measurable, intermediate educational achievements students reach along the path to degree completion

- **Indicators**: Measurable academic patterns that students follow that predict the likelihood they will reach milestones and ultimately earn a degree
## What are Leading Indicators?

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Leading Indicators</th>
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<tbody>
<tr>
<td>▪ Retention</td>
<td>Remediation:</td>
</tr>
<tr>
<td>▪ Transition to college-level coursework</td>
<td>▪ Begin coursework in first term</td>
</tr>
<tr>
<td>▪ Earn one year of college-level credits</td>
<td>▪ Complete needed remediation</td>
</tr>
<tr>
<td>▪ Complete general education (GE)</td>
<td><strong>Gateway Courses:</strong></td>
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<tr>
<td>▪ Complete a community college transfer curriculum</td>
<td>▪ Complete college-level math/English in the first year or two</td>
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<td>▪ Transfer from community college to university</td>
<td>▪ Complete a college success course</td>
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<td>▪ Without completing curriculum</td>
<td><strong>Credit Accumulation and Related Behaviors:</strong></td>
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<tr>
<td>▪ After completing curriculum</td>
<td>▪ High rate of course completion (80%)</td>
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<tr>
<td>▪ Complete certificate or degree</td>
<td>▪ Complete 20-30 credits in first year</td>
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<tr>
<td>▪ Without completing curriculum</td>
<td>▪ Earn summer credits</td>
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<td>▪ After completing curriculum</td>
<td>▪ Enroll full-time</td>
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<td>▪ Enroll continuously, without stopouts</td>
<td>▪ On-time registration for courses</td>
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<tr>
<td>▪ Complete certificate or degree</td>
<td>▪ Maintain adequate academic performance</td>
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A2S Leading Indicators Workgroup

Purpose

To test and refine a set of on-track indicators that can be used to monitor system effectiveness with students on the way to degree completion.

Participants

City University of New York • University of Hawaii System • Louisiana Board of Regents • University of Louisiana System • Minnesota State Colleges and Universities • Tennessee Board of Regents • Vermont State Colleges • University of Wisconsin System
# Leading Indicators

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<th>Remediation:</th>
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<td>• Begin coursework in first term</td>
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What percentage of students reach each of the leading indicators?

What is the impact of reaching each of the leading indicators on success rates?
Key questions to ask about leading indicators

1. What are the most significant drop-off points in the remedial to college-level course pipeline in math?
Four-Year Institutions

<table>
<thead>
<tr>
<th>Institution</th>
<th>Begin Remediation in first year</th>
<th>Complete Remediation in first year</th>
<th>Enrolled in College Level Math within 1 Year</th>
<th>Completed College Level Math within 1 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>System A</td>
<td>83.3%</td>
<td>88.1%</td>
<td>72.7%</td>
<td>57.1%</td>
</tr>
<tr>
<td>System D</td>
<td></td>
<td>44.5%</td>
<td>38.7%</td>
<td>29.8%</td>
</tr>
<tr>
<td>System E</td>
<td>93.2%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>System C</td>
<td>100%</td>
<td>62.7%</td>
<td>33.3%</td>
<td>19.6%</td>
</tr>
<tr>
<td>System F</td>
<td>79.1%</td>
<td>55.9%</td>
<td>38%</td>
<td>28.9%</td>
</tr>
<tr>
<td>System G</td>
<td>85%</td>
<td>62%</td>
<td>43%</td>
<td>NA</td>
</tr>
</tbody>
</table>
Key questions to ask about leading indicators

2. How do the credit indicators compare to your first-year retention rates?

The silent retention problem.
Credit completion rates are lower than first-year retention rates for minority students in some four-year institutions.
Credit completion rates are lower than first-year retention rates for minority students in some two-year institutions.

System D

Overall

- Credit Completion Ratio at least 80% in First year: 62.7%
- % Completed 20 credits in First year: 42.5%
- A2S 1st Year Retention Rates: 48%

URM

- Credit Completion Ratio at least 80% in First year: 45.2%
- % Completed 20 credits in First year: 26.9%
- A2S 1st Year Retention Rates: 45%
Key questions to ask about leading indicators

3. On meeting any indicator, are there differences between student groups by race, income, remediation, and enrollment status?

• Are there counter-intuitive differences?
• Are there no differences where you’d expect differences?
Pell Students progress through the remedial pipeline at higher rates in two-year colleges

System A

Began Math Remediation | Completed Math Remediation | Enrolled In CLM | Completed CLM
---|---|---|---
Non-Pell | Pell
70.5 | 77.4 | 47.3 | 47.2
37.7 | 44.5 | 32.5 | 27.7

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Key questions to ask about leading indicators

3a. On meeting any indicator, are there differences between institutions?
Students progress through the remedial pipeline at different rates in different institutions in this system:

- **System F**
  - Begin Remediation in first year: 79.1%
  - Complete Remediation in first year: 55.9%
  - Enrolled in College Level Math within 1 Year: 38%
  - Completed College Level Math within 1 Year: 28.9%

- **College 1**
  - Begin Remediation in first year: 88.5%
  - Complete Remediation in first year: 57.0%
  - Enrolled in College Level Math within 1 Year: 45.5%
  - Completed College Level Math within 1 Year: 35.8%

- **College 2**
  - Begin Remediation in first year: 62.9%
  - Complete Remediation in first year: 54.6%
  - Enrolled in College Level Math within 1 Year: 25.8%
  - Completed College Level Math within 1 Year: 17.5%
Key Questions to Ask About Impact of Leading Indicators on Success

1. What impact do the meeting the indicators have on student success and for which students?

2. Are students meeting the indicators, especially those that have the greatest impact on success?

3. Does meeting any of the indicators reduce or eliminate gaps between student groups?
Meeting leading indicators has a big impact on student success in four-year institutions.

Graduation Rates by Whether Students Met Indicator

<table>
<thead>
<tr>
<th>System C: Full-time Bachelor’s Cohort</th>
<th>CCR 80%</th>
<th>Completed 24 credits</th>
<th>Completed CL Math</th>
<th>Completed CL English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Met Threshold</td>
<td>52</td>
<td>54</td>
<td>46</td>
<td>39</td>
</tr>
<tr>
<td>Did not meet Threshold</td>
<td>10</td>
<td>17</td>
<td>15</td>
<td>4</td>
</tr>
</tbody>
</table>

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Meeting leading indicators has a big impact on student success in two-year institutions too.

Success Rates by Whether Students Met Indicator

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Met Threshold</th>
<th>Did not meet Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCR 80%</td>
<td>50</td>
<td>13</td>
</tr>
<tr>
<td>Completed 24 credits</td>
<td>56</td>
<td>13</td>
</tr>
<tr>
<td>Completed CL Math</td>
<td>55</td>
<td>20</td>
</tr>
<tr>
<td>Completed CL English</td>
<td>45</td>
<td>14</td>
</tr>
</tbody>
</table>

System B: Full-time and Part-time Associate’s Cohort
Students are not meeting the indicators despite the big impact on success

Percent of students meeting indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Met Threshold</th>
<th>Did not meet Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCR 80% (System B: Full-time and Part-time Associate’s Cohort)</td>
<td>43%</td>
<td>57%</td>
</tr>
<tr>
<td>Completed 24 credits</td>
<td>37%</td>
<td>63%</td>
</tr>
<tr>
<td>Completed CL Math</td>
<td>22%</td>
<td>78%</td>
</tr>
<tr>
<td>Completed CL English</td>
<td>46%</td>
<td>54%</td>
</tr>
</tbody>
</table>
Meeting leading indicators can narrow race graduation gaps

System C: 4-Year Institutions

Grad Rate | CCR 80% | Completed 24 credits | Completed CLM | Completed CLE
---|---|---|---|---
URM 13.2% | Non-URM 36.30% | 52% | 47% | 56%
URM 23.10% | Non-URM 43% | 47% | 41% | 47%
URM 8% | Non-URM 32% | 40%
Further Analysis on Problems Can Point to Solutions

All Degree Seekers (N=247,493)

Completed CL Math Course within 2 Yrs
41,808 (17%)

Did Not Complete CL Math Course within 2 Yrs
205,685 (83%)

No Math Courses Taken within 2 Yrs
105,148 (51%)

Enrolled in at Least One Math Course
100,537 (49%)

Enrolled Only in Remedial Math
64,412 (64%)

Enrolled Only in CL Math
36,125 (36%)

On average, these students:
- Enrolled in 2 CL math courses in 2 years
- Dropped 65%
- Failed 35%

Policies and practices related to assessment/placement, advising and registration processes, course scheduling

Policies and practices related to innovative methods of remedial course design and delivery

Policies and practices related to course dropping and repeats, academic assistance
## Applying Results to Changing Policy and Practice

<table>
<thead>
<tr>
<th>Problem Identified</th>
<th>Possible Changes</th>
</tr>
</thead>
</table>
| Low percentage of developmental education students completing remediation          | • Require early enrollment and completion of remedial coursework  
• Redesign developmental courses into modules so students only repeat needed sections, and provide shorter brush-up courses for students who test near proficiency levels  
• Implement learning communities and more innovative practices like intensive summer programs and contextualized remedial instruction |
| Low percentage of students completing math early                                   | • Better align curriculum and assessments with high schools to improve college readiness  
• Early advising that focuses on importance of taking math early                                                                       |
| Low percentage of students reach a threshold of credit accumulation in the first year | • Increase financial aid to encourage full-time attendance  
• Increase use of college success courses, early advising, etc.  
• Improve financial aid counseling to emphasize benefits of full-time  
• Charge lower per-credit fees for enrolling in a full-time credit load                                                                  |
| Relatively low rate of completing courses (i.e., many course drops and failures) | • Allocate portion of funding on course completion in addition to census enrollment  
• Use early alert systems and improved tutoring services to provide more academic assistance  
• Limit course drops and repeats or impose extra fees for course withdrawal past a certain date or for repeating a course |
Using the Leading Indicator Data

**System Level**
- Diagnose systemwide roadblocks to success
- Identify high-performing campuses to share best practices
- Compare institutions for benchmarking and accountability for campus leaders
- Promote at scale interventions across the system
- Develop data systems that support use of leading indicators

**Campus Level**
- Diagnose course-related roadblocks to success
- Compare course sections, faculty, and departments for improvement and accountability
- Target interventions to remove roadblocks, specifically at course level
- Monitor impact of interventions on student success
Continuing Work with Leading Indicators in A2S

Dissemination

• Disseminate leading indicators research
• Refine common reporting tool as well as recommended additional analyses
• Training for new systems on reporting tool

Continuation

• Support new cohort to undertake leading indicators
• Develop advanced workgroup to further analyses
• Create opportunities for system teams to share how they are using leading indicators
• Work with partner initiatives using leading indicators