Student Success Matrix (SSM\textsuperscript{X})

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Overview

• Past, present, and (one) future
• Four models and their strengths/weaknesses
• Current work based in literature, PAR 1 and current PAR partners
• A tentative model for online student retention
• One possible future, benefits, next steps
• Questions for you
Brief History of Research

- First retention studies followed post-WWII boom
- 1960s “dropouts” studied creating first *empirical* literature
- 1970s, Spady (1971) reviewed literature, created *descriptive* theory applying Durkheim’s (1951) theory of suicide
- Using Spady’s work, Tinto (1975) created *predictive* theory of college dropout behavior
- Bean and Metzner (1985) and others studied non-traditional students – different *predictive* model
Figure 1
Reproduced from Tinto (1993), p. 114
Criticisms of Tinto Model

• Based on assimilation into monolithic culture of higher education
• “Cultural suicide” – students physically and culturally disassociate with past to “survive”
• Critique: Institutions should be more adaptive and responsive to students – “intervene”
• Roots of distinction between “retention” and “persistence” (not the same)
Where is institutional response? Where are “interventions”? 

Assumes these as “given” 

Why univariate outcome? 

Assumes these as “given” 

Figure 1 
Reproduced from Tinto (1993), p. 114
Non-traditional students

• “We label none of the thirteen propositions of Tinto’s theory as reliable knowledge [about] commuter colleges and universities” (Braxton & Lee, 2005)

• For “commuter students” social integration is replaced by environmental variables and psychological outcomes (Bean & Metzner, 1985)
Bean & Metzner’s (1985) model for non-traditional students

Where is institutional response? Where are “interventions”?
Retention or Persistence?

• Retention: institutional goal of keeping students enrolled for consecutive semesters until degree completion

• Persistence: individual goal of a student reaching his or her *specific educational attainment*.

• These are different.
In a national sample, approximately 59% of BA recipients graduated from a different college than the first institution they attended”

(National Center for Education Statistics [NCES], 2003).

Implication: Institutions will fail to “retain” students most of the time
Retention or Persistence?

• Colleges and universities retain students, while students persist to a goal.
• Assumption underlying retention is *retention to degree from original institution*
• Individual student’s goal are different
• Student may successfully persist to a goal without being retained to graduation
• “Educational attainment” - term used to capture the variability of students’ goals and disentangle retention and persistence
Interventions: For Retention or Persistence?

Still assumes these as “given”?

Where is institutional response? Where are “interventions”?

(Falcone, 2012)
Empirical v Conceptual Models

• Previous models have been largely based on conceptual work
• Opportunities exist to test these empirically
• Analytics clearly one way
• Other ways too, for example:
Competing Explanations of Undergraduate Noncompletion
Paul Attewell, Scott Heil and Liza Reisel
Am Educ Res J 2011 48: 536 originally published online 28 December 2010
DOI: 10.3102/0002831210392018

The online version of this article can be found at:
http://aer.sagepub.com/content/48/3/536
**Race/Gender**
- Asian female
- Asian male
- Black female
- Black male
- Hispanic female
- Hispanic male
- Other male or female
- White male
  (Reference: White female)

**Socioeconomic Status**
- Parents’ net worth
- Parent income
- Either parent has BA degree
- Either parent has MA or higher degree
  (Reference: Less than BA)

**High School Preparation**
- Highest math geometry
- Highest math trigonometry
- Highest math pre-calculus
- Highest math calculus
  (Reference: Algebra I or II)
- GPA of B to A–
- GPA of A– to A
  (Reference: GPA lower than B)
- SAT math quintiles
  (Reference: Middle quintile)

**First-Year Financial Aid**
- Pell grant (000s)
- Federal work/study (000s)
- Stafford/Perkins loan (000s)
- All other non-merit aid (000s)

**First-Year College Integration**
- Academic integration scale
- Social integration scale

**First-Year Work Hours**
- Worked 16-30 hours
- Worked more than 30 hours
  (Reference: 15 hours or less)

**First-Year Remediation**
- Any math remediation
- Any reading remediation
- Any English language remediation (Reference: No remediation)

**Nontraditional College Traits**
- First term part-time
  (Reference: Full-time)
- Delayed enrollment
  (Reference: No delay)
- Nontraditional composite:
  Independent or single parent
  or married or has dependents
  (Reference: None of these traits)

**Completion In six years, at any institution.**
Bachelor’s degree for four-year entrants and associate or higher for two-year entrants.
National Empirical Results

Interventions targeted toward:

• *preventing* delayed entry to college
• *increasing* part-timers’ level of enrollment
• *boosting* financial aid in *community colleges*
• *reducing* students’ work hours

have the greatest numerical potential for improving completion rates.

Caveat: National results don’t tell me about me
What’s Missing?

• We need new models
• Neither “traditional” nor “commuters”
• Need the model to be explicit:
  – Online + Classroom + Blended
  – Institutional response/interventions
  – Retention/persistence
  – Multivariate outcomes
  – Conceptual but empirically testable “here”
<table>
<thead>
<tr>
<th>Predictors</th>
<th>Research Literature</th>
<th>PAR POC Findings</th>
<th>Partners Experience</th>
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<tbody>
<tr>
<td>Learner characteristics</td>
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<tr>
<td>Learner behaviors</td>
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<tr>
<td>Academic integration</td>
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<tr>
<td>Social-psychological integration</td>
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<tr>
<td>Other learner support</td>
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<tr>
<td>Course/program characteristics</td>
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<tr>
<td>Instructors behaviors</td>
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</tbody>
</table>
time

academic cycle

program/course

connection → entry → progress → completion
<table>
<thead>
<tr>
<th>PREDICTOR CATEGORY</th>
<th>CONNECTION</th>
<th>ENTRY</th>
<th>PROGRESS</th>
<th>COMPLETION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>italics</strong> = research literature regular = partner experience <strong>bold</strong>=PAR Framework findings —limited list of predictors below each category—</td>
<td>application to enrollment (advising to enrollment)</td>
<td>completion of gatekeeper courses (beginning of class)</td>
<td>entry into program to 75% of classes complete (middle of class)</td>
<td>of course of study &amp; credential w/ market value (end of class)</td>
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<tr>
<td><strong>LEARNER CHARACTERISTICS</strong></td>
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<tr>
<td>prior GPA; achievement beliefs; content Knowledge &amp; skills; ... 1st time in college</td>
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<tr>
<td><strong>LEARNER BEHAVIORS</strong></td>
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<tr>
<td>attendance/log ins; participation in orientation programs; withdrawals; ... engagement</td>
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<tr>
<td><strong>ACADEMIC INTEGRATION</strong></td>
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<tr>
<td>participation in student learning communities; peer mentoring;...specialized program coordinators</td>
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<tr>
<td><strong>SOCIAL/PSYCHOLOGICAL INTEGRATION</strong></td>
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<tr>
<td>perceived social presence; participation in freshmen interest groups;...specialized program coordinators</td>
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<tr>
<td><strong>OTHER LEARNER SUPPORT</strong></td>
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<td>ongoing student support services...</td>
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<tr>
<td><strong>COURSE/PROGRAM CHARACTERISTICS</strong></td>
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<tr>
<td>perceived interactivity; ...perceived utility</td>
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<tr>
<td><strong>INSTRUCTOR BEHAVIORS/CHARACTERISTICS</strong></td>
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<tr>
<td>faculty responsiveness;...perceived social presence</td>
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**Targeted Focus** $^T$ • **General Focus** $^G$
<table>
<thead>
<tr>
<th><strong>PREDICTORS</strong></th>
<th><strong>CONNECTION</strong></th>
<th><strong>ENTRY</strong></th>
<th><strong>PROGRESS</strong></th>
<th><strong>COMPLETION</strong></th>
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<td>of course of study &amp; credential w/ market value (end of class)</td>
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<tr>
<td><strong>learner characteristics</strong></td>
<td>New Student Orientation (UIS)</td>
<td>Services for students with disabilities (UIS)</td>
<td>Services for students with disabilities (UIS)</td>
<td>Services for students with disabilities (UIS)</td>
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<td>prior GPA</td>
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<td>Technology Helpdesk (UIS)</td>
<td>Technology Helpdesk (UIS)</td>
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<td>self-motivation</td>
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<td>Tutoring (UIS)</td>
<td>Tutoring (UIS)</td>
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<td>attitudes towards tech</td>
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<td>Referrals to Counseling (UIS)</td>
<td>Referrals to Counseling (UIS)</td>
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<tr>
<td>content knowledge &amp; skills</td>
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<tr>
<td>being net new/no prior college</td>
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<td>Need Dev-Ed/Take DevEd</td>
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<td>prior courses with C or better</td>
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<tr>
<td><strong>learner behaviors</strong></td>
<td>Tutoring (UIS)</td>
<td>Tutoring (UIS)</td>
<td>Tutoring (UIS)</td>
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<tr>
<td>easy access to a computer</td>
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<td>Referrals to Counseling (UIS)</td>
<td>Referrals to Counseling (UIS)</td>
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<tr>
<td>participation in tutorials</td>
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<td>too many concurrent courses</td>
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<td>Online program coordinators (UIS)</td>
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<td>Online program coordinators (UIS)</td>
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<tr>
<td>participation in tutorials</td>
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<td>Online program coordinators (UIS)</td>
<td>Online program coordinators (UIS)</td>
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<td>peer mentoring</td>
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<td>Writing center (UIS)</td>
<td>Writing center (UIS)</td>
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<td>student learning communities</td>
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<td>Social media groups (UIS)</td>
<td>Social media groups (UIS)</td>
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<td>orientation programs</td>
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<td>Honors Program (UIS)</td>
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<td>freshman interest groups</td>
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<td>program coordinators</td>
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<tr>
<td><strong>social/psychological integration</strong></td>
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<td>Financial Aid (UIS)</td>
<td>Financial Aid (UIS)</td>
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<td><strong>course/program characteristics</strong></td>
<td>QM reviews for some classes (UIS)</td>
<td>QM reviews for some classes (UIS)</td>
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<td><strong>instructor characteristics/behaviors</strong></td>
<td>Community of Practice for E-Learning (UIS)</td>
<td>Community of Practice for E-Learning (UIS)</td>
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<tr>
<td>perceived social presence</td>
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<td>Community of Practice for Online Learning Research &amp; Service Fellows (UIS)</td>
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<tr>
<td>perceived interactivity</td>
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</table>

**general focus** – institution wide  
**targeted focus** – targets particular groups of students or programs
differing types of supports X predictors addressed
predictors addressed: community vs. 4-year colleges

- **Community Colleges**
  - Learner Characteristics: 24%
  - Learner Behaviors: 14%
  - Academic Integration: 20%
  - Social-Psych Integration: 8%
  - Other Learner Support: 9%
  - Course/Program Characteristics: 17%
  - Instructor Behaviors: 8%

- **4-Year Colleges**
  - Learner Characteristics: 23%
  - Learner Behaviors: 13%
  - Academic Integration: 21%
  - Social-Psych Integration: 11%
  - Other Learner Support: 13%
  - Course/Program Characteristics: 10%
  - Instructor Behaviors: 10%
predictors addressed: for-profit vs. public

for-profit colleges
- Learner Characteristics: 33%
- Learner Behaviors: 11%
- Academic Integration: 23%
- Social-Psych Integration: 15%
- Other Learner Support: 8%
- Course/Program Characteristics: 3%
- Instructor Behavior: 11%

public colleges
- Learner Characteristics: 29%
- Learner Behaviors: 11%
- Academic Integration: 17%
- Social-Psych Integration: 8%
- Other Learner Support: 11%
- Course/Program Characteristics: 17%
- Instructor Behavior: 7%
predictors addressed: open vs. selective admissions

open admissions

- Learner Characteristics: 26%
- Learner Behaviors: 14%
- Academic Integration: 19%
- Social-Psych Integration: 8%
- Other Learner Support: 10%
- Course/Program Characteristics: 14%
- Instructor Behaviors: 8%

selective admissions

- Learner Characteristics: 21%
- Learner Behaviors: 14%
- Academic Integration: 19%
- Social-Psych Integration: 11%
- Other Learner Support: 14%
- Course/Program Characteristics: 10%
- Instructor Behaviors: 10%
- Learner Characteristics: 21%
predictors addressed: online only vs. mixed delivery

online only

mixed delivery
differing types of supports X academic cycle

Completion: 14%
Connection: 18%
Progress: 31%
Enter: 37%
academic cycle: community vs. 4-year colleges

Community Colleges:
- Completion: 11%
- Connection: 18%
- Progress: 32%
- Entry: 39%

4-Year Colleges:
- Completion: 16%
- Connection: 17%
- Progress: 31%
- Entry: 36%
academic cycle: for-profit vs. public

for-profit colleges
- Connection: 18%
- Entry: 39%
- Progress: 37%
- Completion: 6%

public colleges
- Connection: 17%
- Entry: 38%
- Progress: 31%
- Completion: 14%
academic cycle: open vs. selective admissions

open admissions

- Completion: 12%
- Connection: 16%
- Progress: 33%
- Entry: 39%

selective admissions

- Completion: 15%
- Connection: 18%
- Progress: 31%
- Entry: 36%
academic cycle: online only vs. mixed delivery

**Online Only**
- Connection: 20%
- Completion: 19%
- Progress: 28%
- Entry: 33%

**Mixed Delivery**
- Connection: 15%
- Completion: 10%
- Progress: 34%
- Entry: 41%
comparisons:
2-year vs. 4-year vs. both
comparisons: for-profit vs. public institutions

academic cycle

<table>
<thead>
<tr>
<th>Connection</th>
<th>FOR PROFIT</th>
<th>PUBLIC</th>
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<tbody>
<tr>
<td>18.10%</td>
<td>17.55%</td>
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<tr>
<th>Entry</th>
<th>FOR PROFIT</th>
<th>PUBLIC</th>
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<tr>
<td>38.79%</td>
<td>36.78%</td>
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<tr>
<th>Progress</th>
<th>FOR PROFIT</th>
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<tr>
<td>37.07%</td>
<td>30.90%</td>
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<thead>
<tr>
<th>Completion</th>
<th>FOR PROFIT</th>
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<tr>
<td>6.01%</td>
<td>14.78%</td>
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Learner Characteristics

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<thead>
<tr>
<th>Learner Characteristics</th>
<th>FOR PROFIT</th>
<th>PUBLIC</th>
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<tbody>
<tr>
<td>32.79%</td>
<td>29.00%</td>
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Learner Behaviors

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<thead>
<tr>
<th>Learner Behaviors</th>
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<tr>
<td>6.56%</td>
<td>11.00%</td>
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Academic Integration

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<th>Academic Integration</th>
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<th>PUBLIC</th>
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<tbody>
<tr>
<td>22.95%</td>
<td>16.90%</td>
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Social-Psychological Integration

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<td>14.75%</td>
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Other Learner Support

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<tr>
<td>10.54%</td>
<td>8.20%</td>
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Course/Program Characteristics

<table>
<thead>
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<th>Course/Program Characteristics</th>
<th>FOR PROFIT</th>
<th>PUBLIC</th>
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<tbody>
<tr>
<td>16.54%</td>
<td>3.28%</td>
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Instructor Behavior/Characteristics

<table>
<thead>
<tr>
<th>Instructor Behavior/Characteristics</th>
<th>FOR PROFIT</th>
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<tbody>
<tr>
<td>11.48%</td>
<td>7.20%</td>
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comparisons: open vs. selective admissions

predictors
comparisons: online only vs. mixed delivery

academic cycle

<table>
<thead>
<tr>
<th>Category</th>
<th>Online Only</th>
<th>Mixed Delivery</th>
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<tbody>
<tr>
<td>Connection</td>
<td>20.27%</td>
<td>15.35%</td>
</tr>
<tr>
<td>Entry</td>
<td>32.66%</td>
<td>40.56%</td>
</tr>
<tr>
<td>Progress</td>
<td>28.14%</td>
<td>34.23%</td>
</tr>
<tr>
<td>Completion</td>
<td>18.93%</td>
<td>9.86%</td>
</tr>
</tbody>
</table>

Learner Characteristics
- Learner Behaviors
  - Online Only: 13.64%
  - Mixed Delivery: 13.69%
- Academic Integration
  - Online Only: 21.21%
  - Mixed Delivery: 26.24%
- Social-Psychological Integration
  - Online Only: 10.61%
  - Mixed Delivery: 8.37%
- Other Learner Support
  - Online Only: 9.89%
  - Mixed Delivery: 13.64%
- Course/Program Characteristics
  - Online Only: 9.85%
  - Mixed Delivery: 14.45%
- Instructor Behavior/Characteristics
  - Online Only: 10.35%
  - Mixed Delivery: 7.98%
modeling retention & progression online

- learner characteristics
- instructor behaviors
- course characteristics
- other support
- academic integration
- social-psychological integration
- learner behaviors
- retention/progression
modeling retention & progression online

- learner characteristics
- course characteristics
- other support
- instructor behaviors
- academic integration
- social-psychological integration

learner behaviors

retention/progression
modeling retention & progression

- instructor behaviors
- course characteristics
- social-psychological integration
- academic integration
- other support

Data Driven Institutional Response/Interventions

- learner behaviors
- retention/progression
Data Driven Institutional Response/Interventions
Benefits
Next Steps
Questions?