Predictive Analytics, Digital Feedback, and Student Support: Extremely Early Support Innovation

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Arleen Elseroad
Craig Hayward
Rebecca Kaminsky
Robert Melendez
Our Team

- Arleen Elseroad
  - Title: Dean of Enrollment Services
  - Role: SSSP Coordinator

- Craig Hayward
  - Title: Senior Researcher, the RP Group
  - Role: Researcher

- Rebecca Kaminsky
  - Title: English Professor
  - Role: Representing academic faculty

- Robert Melendez
  - Title: Counselor, Chair of the School of Guidance and Counseling
  - Role: Liaison for counseling and support services
• SARS Alert
  • Allowed faculty to mark/input concerns on students who were struggling. Information was forwarded to counseling for follow-up with the students.

• Barriers to successful implementation:
  • SARS Alert was a separate system outside of what faculty used on a daily basis.
  • System was limited to what could be customized.
  • Only allowed for negative feedback.

• Final Results of SARS Alert:
  • Limited faculty participation
  • Limited data collection (?)
  • Limited information to assist counselors
Early Alert 2.0 = Extremely Early Support Innovation (EESI)

- Collaborative Effort
  - Team made up of faculty, staff, and administrators
  - Sought consensus across campus & district
    - Attended department and school faculty meetings
    - Presented during IVC’s Flex Week
    - Faculty & staff from IVC & Saddleback collaborated
    - Encouraged all faculty to participate in the pilot
    - Pilot group was given the opportunity for feedback on the system and desired changes
  - Consistent emails outlining progress each semester
- Funded by Student Success and Support Program (SSSP)
- Developed as a project as part of Leading from the Middle
THE MURKY MIDDLE
Profiling campus segments based on early academic performance to determine which students succeed, which fail, and where schools should focus their efforts

Most student success initiatives target freshman students, but 53% of attrition occurs after the first year. And of these late stage departures, over half are within the "Murky Middle."
Where are you focusing your student success efforts?

Murky Middle 33%
(20% Graduates, 13% Depart)
Large numbers of students finish their first year with a GPA between 2.0 and 3.0. Even though they aren’t on probation, nearly two-thirds of these students won’t complete. Yet these students are traditionally overlooked at most schools—in part because it is difficult to distinguish those who ultimately graduate from those who eventually depart.
The fate of the murky middle student is just that—murky. This population demands attention, but with limited resources it isn’t possible to target the entire group.
Emerging research from the Student Success Collaborative suggests that rigorous analyses of academic data can separate the hidden population of struggling students from the likely graduates, enabling targeted intervention efforts and ultimately improved outcomes.

Students by First-Year GPA
Student Success Collaborative National Data Set
(approx. 740,000 Students)

2%
Phoenixes
Despite facing early challenges, these students are able to course correct and ultimately graduate. Unfortunately, fewer than one in ten students who finish their first year below a 2.0 GPA will eventually right the ship—despite considerable investment from their institutions.

11%
Failed to Launch
These students fail to hit the ground running and struggle in the initial phase of college. More than three-fifths of the students who finish their first year with a GPA below 2.0 don’t make it back, an statistic that shows despite extensive investments and efforts on their behalf, Schools may want to consider reallocating energy toward a group of students more likely to complete, like the Murky Middle.

5%
The Ones That Got Away
Anecdotal evidence suggests that the majority of those students are transferring to and graduating from other institutions after the first year. Most institutions would lose the high performing students and don’t want to see them enroll with a competitor. Though many in this group learn to fit the profile remains another more chronic and support could help retain a portion of these strong students.

7%
Unsolved Mysteries
Sometimes even the best students won’t complete. It can be hard to isolate the cause of attrition for this group of delayed departures. Perhaps they decide to transfer, encounter personal hardship, or are unable to persist due to finances. Whatever the reason, it isn’t showing up on their academic record, leaving many institutions wondering how they can be reached and what this group’s attention is ultimately worth of their own.

27%
All-Stars
Three-fifths of students who make it to their second year with a 3.0 GPA go on to graduate. While academically successful these students aren't immune. They tend to consume considerable advising resources through voluntary self-improvement efforts.

EESI = Data driven
EESI planning

• Timing:
  • Extremely Early (application and pre-enrollment)
    • Predictive analytics
  • During Semester
    • How Works/Demo
      • MySite interface
    • Interface with Support Services
      • What faculty members see and do
      • What support services see and do
### Progress Report Interface

#### Welcome Gerlie Test
Your Network ID and College Email Address will be available within 24 hours of your first class enrollment.

#### MySite
- My Work
- Academic Calendar
- Administration
- Awards MyEtc
- Application MyEtc
- Matriculation
- Registration
- Student Records
- Duplicate Students
- Student Search
- Student Accounts
- Batch Processes
- Services
- Grades MyEtc
- IT Support Request
- Scholarships
- Prerequisites
  - Active Registrations
  - Grade Replacement Process
  - Roster Download - Any TC
  - Reports
  - Student Inquiry
  - Transcript Processing
  - Unofficial Transcript Process
- My Classes
- My Information
- My Academic Plan
- My Email
- Change PIN/Password
- My College
- Contact Us
- My Preferences
- Parking
- Help

#### Current Term: Fall 2015
- Next Term: Not Enrolled
- Last Registered Terms: Fall 2015
- Default Term: Fall 2015
- Catalog Year: 2015-2016

#### Progress Report

<table>
<thead>
<tr>
<th>Term</th>
<th>Ticket</th>
<th>Course</th>
<th>Title</th>
<th>Units</th>
<th>Drop/Withdrawal Date</th>
<th>Feedback Date</th>
<th>Feedback By</th>
<th>Feedback</th>
<th>Recommended Action</th>
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<tbody>
<tr>
<td>Fall 15</td>
<td>15670</td>
<td>CHEM 106</td>
<td>BASICS OF CHEMISTRY</td>
<td>2</td>
<td>12/3/2015</td>
<td>Scott Flair</td>
<td>High Quiz Scores</td>
<td>Great job - high quiz scored</td>
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EESI Logic Model

Nudges
- Students and counselors receive nudges

Counselors
- Can review and address concerns

Data
- Disaggregated reports available (e.g., EOPS, Athletes, etc.) for research, planning and improvement

Student behavior
Progress Report page appears with information related to the student's course, feedback, and recommended actions from the instructor within each term.

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<td>MATH 11</td>
<td>BRIEF COURSE/CALCULUS</td>
<td>5</td>
<td>2/26/2016</td>
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E.E.S.I. (2.0)

Disaggregated reports available (e.g., EOPS, DSPS, International, Athletes, etc.) for research, planning, and improvement.

Counselors can review nudges and address concerns.

Nudge is sent to student.

Disaggregated reports available (e.g., EOPS, DSPS, International, Athletes, etc.) for research, planning, and improvement.
Early Alert 2.0 = EESI (cont.)

- Messaging:
  - Nudges
    - Positive
    - Negative
    - How written
  - Evaluation of impact (Craig)
    - Conducting a propensity score match to control for differences between those who receive Progress Report nudges and those who don’t
    - No significant differences, yet
    - Analyses will continue with additional refinements
      - Adding controls for teacher grading variability
Predictive Risk Stratification

An Innovative Framework
Organize Your Student Population with Risk Stratification

HIGH RISK
Students with easily identifiable but often multidimensional risk
- High predicted risk score
- Part of pre-identified high-risk group (e.g., first generation)
- On probation
- Flagged by faculty or staff

RISING RISK
Students whose profiles and behaviors indicate possible risk escalation
- Moderate predicted risk score
- Indicators of escalating risk (e.g., falling GPA, bursar hold)

LOW RISK
Students with no visible signs of attrition risk
- Low predicted risk score
- No data-based or observed risk indicators
Predictive Risk Stratification

- High Risk
- Medium Risk
- Low Risk
Components of an extremely early predictive model

Early Predictors
- First generation college student
- High school GPA
- Educational goal
- Traditional age or not
- Income
- ESL student
- From local feeder
- Time to campus
- International student
- High school graduate
- Bachelor’s or higher

Outcomes
- Withdrew from any class
- DFW in any class
- No course completed
- Flameout
- Retention
- Term GPA
- Term units earned
- Persistence
Predictive Risk Stratification (cont.)

DFW

- hsGPA < 2.3
  - hsGPA < 2.2
    - ESL Student = No
      - goal = Other, Undecided, Transfer
        - 0.58
        - 14%
    - ESL Student = Yes
      - 0.45
      - 12%
  - hsGPA < 2.0
    - time <= 0.28
      - 0.27
      - 9%
    - time > 0.28
      - 0.34
      - 10%
  - hsGPA < 1.4
    - tradAge = Yes
      - 0.12
      - 3%
    - tradAge = No
      - 0.22
      - 17%
      - 0.27
      - 11%
      - 0.33
      - 2%

- hsGPA < 3
  - hsGPA < 2.3
    - ESL Student = No
      - goal = Other, Undecided, Transfer
        - 0.58
        - 14%
    - ESL Student = Yes
      - 0.45
      - 12%
  - ESL Student = Yes
    - goal = Other, Undecided, Transfer
      - 0.58
      - 14%
HSGPA and Transfer Level English Success Rates

Average Success Rate in Transfer Level English Course

- 0.0: 67%
- 0.2: 40%
- 0.4: 40%
- 0.6: 43%
- 0.8: 33%
- 1.0: 46%
- 1.2: 50%
- 1.4: 59%
- 1.6: 59%
- 1.8: 56%
- 2.0: 52%
- 2.2: 45%
- 2.4: 47%
- 2.6: 64%
- 2.8: 77%
- 3.0: 74%
- 3.2: 76%
- 3.4: 79%
- 3.6: 81%
- 3.8: 86%
- 4.0: 91%

High School GPA

70% Reference
What do we plan to do with it?

- Match messaging and interventions to risk level
- Create a success pathway (i.e. additional workshops, counseling appointments, direct communication from support services) for students who are identified as needing more support.
Predictive Risk Stratification (cont.)

*we warned you on the last slide...
Predictive Risk Stratification (cont.)

• Care Pathway A = High touch
• Care Pathway B = Active monitoring
• Care Pathway C = Enabling engagement
DO YOU HAVE ANY "QUESTIONS"