The Bottom Line on Student Retention: Data-Driven Approaches that Work

Presented by:

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&
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Overview of Presentation

• Undergraduate Retention: Context and Overview
• Improving Retention: A Data-Driven, Best Practices Approach
• Sample Responses/Initiatives
• Conclusions
• Questions / Discussion
• Retention is a national higher education problem. http://www.completecollege.org

• Students who leave before graduation represent a lost revenue stream

• Replacement strategies can be costly and inefficient
Current College Completion Rates: 4-Year Colleges

- Approximately 4 in 10 entering freshmen obtain a bachelor’s degree within 4 years.
- Within six years of entry, that proportion rises to about 6 in 10.
- If you go further, to look at graduation from ANY institution, numbers grow to about two-thirds.
Graduation Rates Vary Widely Across the Nation’s Postsecondary Institutions

Chart 6
Six-Year Graduation Rate, Entering Class of 1996 Full-Time, First-Time, Degree Seeking Freshmen

• Some of these differences are clearly attributable to differences in student preparation and/or institutional mission. But not all...
Choose a College

Type in all or part of the name of a specific college to see its graduation rates and related information along with information about a comparison group of 15, 25 or 50 similar colleges.

View more search options >>>

Compare Colleges

Create your own group of colleges to compare their graduation rates and related information.

Compare Colleges Now

Advanced Search

Compare graduation rates for a group of colleges that you select based on specific student and institutional characteristics.

Go to Advanced Search
## Great Lakes Private Institutions

### Similar Students, Different Results

<table>
<thead>
<tr>
<th>Institution</th>
<th>Median SAT</th>
<th>Size</th>
<th>% Pell</th>
<th>% URM</th>
<th>Overall Grad Rate</th>
<th>URM Grad Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alma College</td>
<td>1,085</td>
<td>1,182</td>
<td>26.8%</td>
<td>4.2%</td>
<td>70.5%</td>
<td>N/A</td>
</tr>
<tr>
<td>Illinois College</td>
<td>1,085</td>
<td>1,008</td>
<td>24.5%</td>
<td>5.2%</td>
<td>58.0%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Marietta College</td>
<td>1,065</td>
<td>1,361</td>
<td>27.8%</td>
<td>5.4%</td>
<td>56.1%</td>
<td>26.3%</td>
</tr>
<tr>
<td>Adrian College</td>
<td>1,045</td>
<td>1,022</td>
<td>31.4%</td>
<td>7.0%</td>
<td>50.2%</td>
<td>45.0%</td>
</tr>
<tr>
<td>Monmouth College</td>
<td>1,045</td>
<td>1,350</td>
<td>27.1%</td>
<td>8.7%</td>
<td>60.5%</td>
<td>76.5%</td>
</tr>
</tbody>
</table>

Source: College Results Online 2007 data
Some Important Lessons from Successful Campuses

- They look at their data and act.
- They pay attention to leading indicators (early warning systems).
- They provide and require the academic support services needed.
- They assign clear responsibility for student success.

- From Kati Haycock, President of The Education Trust

- Some also develop intrusive intervention techniques
The Danger of the Anecdote

- Some things are easier to admit than others ("I can’t afford it" versus "I’m homesick").
- Patterns are difficult to discern and so interventions aren’t targeted.
- The voices of those that drift away aren’t heard.
Advantages of a Data-Driven Approach

- Enables patterns to become clearer
- Supports targeted interventions
- Provides clear answers to key questions
  - How can we identify at-risk students?
    - Cohort retention rates/Grad rates by subpopulation/Predictive Retention
  - How can we know what is working?
  - What gaps do we need to address?
  - Where are they going when they leave?
    - NSC
Step One: Project Team and Preliminaries

• Multi-disciplinary team
  (CFO/budget, financial aid, admissions, academic affairs, institutional research, student life, information technology)

• Project timeline

• Budget ??
Step Two: Assemble and Review “Off-the-Shelf” Research

- Descriptions of existing retention-related initiatives
- National survey research (NSSE, SSI, CIRP, Others?)
- Institutional surveys/exit interviews
- General enrollment/retention trends
Step Three: Commission New Research/
Update and Augment “Old” Research

• Table analysis
• Predictive modeling
• National Student Clearinghouse
• Custom surveys
• Benchmarking
• Interviews & focus groups
### Sample Table Analysis I

**Guided by data, driven by service**

<table>
<thead>
<tr>
<th>College</th>
<th>A&amp;S</th>
<th>EDUC</th>
<th>ENGIN</th>
<th>NURS</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entering Cohort</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004 (Retain to Term 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Aided</td>
<td>72%</td>
<td>94%</td>
<td>68%</td>
<td>70%</td>
<td>73%</td>
</tr>
<tr>
<td>Aided</td>
<td>76%</td>
<td>82%</td>
<td>81%</td>
<td>88%</td>
<td>78%</td>
</tr>
<tr>
<td>2005 (Retain to Term 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Aided</td>
<td>73%</td>
<td>71%</td>
<td>79%</td>
<td>67%</td>
<td>73%</td>
</tr>
<tr>
<td>Aided</td>
<td>82%</td>
<td>84%</td>
<td>89%</td>
<td>86%</td>
<td>84%</td>
</tr>
<tr>
<td>2006 (Retain to Term 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Aided</td>
<td>83%</td>
<td>100%</td>
<td>83%</td>
<td>75%</td>
<td>84%</td>
</tr>
<tr>
<td>Aided</td>
<td>88%</td>
<td>93%</td>
<td>91%</td>
<td>90%</td>
<td>90%</td>
</tr>
</tbody>
</table>
## Freshman to Sophomore Retention of Freshman Cohorts (2004-2010) by Need Level

<table>
<thead>
<tr>
<th>Need Level</th>
<th>Term 1</th>
<th>Term 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>No FAFSA</td>
<td>1141</td>
<td>673</td>
</tr>
<tr>
<td>$0 (No need)</td>
<td>664</td>
<td>513</td>
</tr>
<tr>
<td>$1-$10,000</td>
<td>514</td>
<td>391</td>
</tr>
<tr>
<td>10,001-16,000</td>
<td>535</td>
<td>403</td>
</tr>
<tr>
<td>$16,001-$22,000</td>
<td>694</td>
<td>503</td>
</tr>
<tr>
<td>$22,001-$28,000</td>
<td>1112</td>
<td>803</td>
</tr>
<tr>
<td>&gt;$28,000</td>
<td>1002</td>
<td>714</td>
</tr>
</tbody>
</table>
Table Analysis

• Profile “attrits” and retained students by:
  • Financial aid group
  • Entry statistics
  • Program area
  • Gender
  • GPA at institution
  • Ethnicity
  • Etc.
Predictive Modeling

• Goals
  • Identify factors important in the re-enrollment decision (holding other factors constant) using multiple logistic regression analysis
  • Develop targeted intervention strategies
What is Predictive Modeling (or Multiple Logistic Regression)?

- Multiple Logistic Regression, is a statistical procedure used for the inference, prediction, and modeling of causal relationships.
- In a retention model, for example, the probability of re-enrollment for each student is determined as a function of individual student characteristics appropriate for the institution.
- Probability that a student will enroll = f (student need, major, SAT, etc.).
## Sample Predictive Retention Model

Guided by data, driven by service

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (impact on probability of retention to Term 3)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Grant</td>
<td>+.5%</td>
<td>For every $1000 increase in total grant a person is .5% more likely to retain to Term 3</td>
</tr>
<tr>
<td>Unmet Need</td>
<td>-.5%</td>
<td>For every $1000 increase in unmet need a person is .5% less likely to retain to Term 3</td>
</tr>
<tr>
<td>Term 1 GPA</td>
<td>+14.2%</td>
<td>For every 1 point increase in GPA (2.0 to 3.0) a person is over 14% more likely to retain to Term 3</td>
</tr>
<tr>
<td>Term 1 GPA &lt; 1.75</td>
<td>-25.6%</td>
<td>Students with a Term 1 GPA &lt; 1.75 are over 25% less likely to return to Term 3 than students with a Term 1 GPA &gt; 1.75</td>
</tr>
<tr>
<td>In-State</td>
<td>+7.0%</td>
<td>In-state students are 7% more likely to retain to Term 3 than out-of-state students</td>
</tr>
<tr>
<td>Special Admits</td>
<td>-8.3%</td>
<td>Special admits are over 8% less likely to retain to Term 3 than regular admits</td>
</tr>
<tr>
<td>Engineers</td>
<td>-11.0%</td>
<td>Engineers are 11% less likely to retain to Term 3 than A&amp;S students</td>
</tr>
<tr>
<td>Commuters</td>
<td>-5.0%</td>
<td>Commuter students are 5% less likely to retain to Term 3 than resident students</td>
</tr>
</tbody>
</table>
Possible Interventions Based on the Model

• Special tutorial program for anyone with a < 1.75 Term 1 GPA, including mandatory study hall.
• Special advising strategy, including a focused first-year seminar, for engineering students.
• Given that in-state students are more likely to retain, the fact that commuters are less likely to retain makes them a target group for special attention.

• Note: Increasing grant aid would NOT be recommended (cost/benefit)
Possible Next Steps in Modeling

• If achieving a particular Term 1 GPA or better is very significant in retaining to Term 3, then there are two additional models that could be constructed:

  • One would examine those factors that were significant in predicting retention to Term 3 for everyone who had a GPA ≥ X.
  • The other would examine those factors that were significant in predicting who would achieve a GPA < X.
## Sample Predictive Retention Model for Achievers

### Variable Marginal Effects Calculation Explanation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Marginal Effects Calculation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Grant</td>
<td>0.008193</td>
<td>For every $10,000 of total grant retention to term 3 increases by 8%.</td>
</tr>
<tr>
<td>Term 1 GPA</td>
<td>0.044747</td>
<td>Students achieving a 2.25 or better term 1 GPA are 4.5% more likely to retain to term 3 than students with a term 1 GPA below 2.25.</td>
</tr>
<tr>
<td>HS GPA</td>
<td>0.076175</td>
<td>For every additional point increase in HS GPA (i.e. 2.25 to 3.25) retention to term 3 increases by 7.6%.</td>
</tr>
<tr>
<td>Attempted Hours</td>
<td>0.030916</td>
<td>For every additional credit hour attempted a student is 3% more likely to retain to term 3.</td>
</tr>
<tr>
<td>International Student</td>
<td>-0.32591</td>
<td>International students with a 2.25 term 1 GPA or better are 33% less likely to retain to term 3 than U.S. citizens with term 1 GPA of 2.25 or better.</td>
</tr>
<tr>
<td>Varsity Athlete</td>
<td>0.036798</td>
<td>Varsity athletes with term 1 GPA of 2.25 or better are 3.7% more likely to retain to term 3 than non-varsity athletes with a minimum 2.25 term 1 GPA.</td>
</tr>
</tbody>
</table>

- Will additional grant make a noticeable difference?
- Support systems in place for international students.
### Sample Predictive Retention Model for At-Risk Students

<table>
<thead>
<tr>
<th>Variable</th>
<th>Marginal Effects Calculation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1 FM Need</td>
<td>0.002497</td>
<td>For every $10,000 of demonstrated need a student is 2.5% more likely to earn a term 1 GPA below 2.25.</td>
</tr>
<tr>
<td>ACT Score</td>
<td>-0.01212</td>
<td>For every 1 point increase in ACT (i.e. 20 to 21) a student is 1.2% less likely to earn a term 1 GPA below 2.25.</td>
</tr>
<tr>
<td>Attempted Hours</td>
<td>-0.02736</td>
<td>For every additional credit hour attempted (i.e. 14 to 15) a student is 2.7% less likely to earn a term 1 GPA below 2.25.</td>
</tr>
<tr>
<td>Female Student</td>
<td>-0.09602</td>
<td>Female students are 9.6 less likely to earn a term 1 GPA below 2.25.</td>
</tr>
<tr>
<td>Minority Student</td>
<td>0.067698</td>
<td>Minority students are 6.8% more likely to earn a term 1 GPA below 2.25.</td>
</tr>
<tr>
<td>Commuter Student</td>
<td>-0.09433</td>
<td>Commuting students are 9.4% less likely to earn a term 1 GPA below 2.25.</td>
</tr>
<tr>
<td>Athlete</td>
<td>-0.08645</td>
<td>Athletes are 8.6% less likely to earn a term 1 GPA below 2.25.</td>
</tr>
<tr>
<td>Performed Service Hours</td>
<td>-0.11033</td>
<td>Students who fulfill service are 11% less likely to earn a term 1 GPA below 2.25.</td>
</tr>
<tr>
<td>Judicial Incident</td>
<td>0.072875</td>
<td>Students who's behavior require judicial reporting are 7.3% more likely to earn a term 1 GPA below 2.25.</td>
</tr>
<tr>
<td>Received EARP Notice</td>
<td>0.292596</td>
<td>Students who receive EARP notices are 29.3% more likely to earn a term 1 GPA below 2.25.</td>
</tr>
</tbody>
</table>

- ACT prove to be strong assessment tool at point of admission evaluation
- Programming for male students
- Service plays a vital role in academic achievement
Unique Campuswide Educational Research Tool

StudentTracker puts the Clearinghouse’s comprehensive student records data at your fingertips. Officials across your campus can use it to perform all types of educational research and analyses – quickly, easily and affordably.

Through StudentTracker, you can tap into the nation’s largest database of enrollment data – the only one of its kind. You’ll have immediate access to our database covering more than 93 million current and former students, continually updated to ensure the greatest accuracy.

If your institution participates in DegreeVerify, you can also access our more than 10 million degree records.

StudentTracker data is highly accessible, available as individual student queries via the Web, flat files, Excel spreadsheets, or aggregate summary reports.

New Data Elements & StudentTracker Discounts for Colleges
We’ve increased the number of data elements colleges can report to us. In addition, we’re offering colleges substantial discounts on StudentTracker, including free StudentTracker! To learn more, read our new data elements & pricing overview or contact us.
Custom Surveys

• Custom surveys can uncover a variety of information about students who stay—and students who attrit
• Telephone based, third-party vendor surveys are best (but costly)
• Objective data are worth it
Survey Topics Could Include

- Students’ educational and career objectives
- Ratings of their experience at your institution
- Reasons for leaving
- Comparisons between your institution and their new college or university
- Impact of participation in extra-curricular activities
- Financial issues
## Benchmarking

_Benchmarking_ (Guided by data, driven by service)

<table>
<thead>
<tr>
<th>Private</th>
<th>Tuition &amp; Fees 2009-10 (in-state)</th>
<th>Tuition &amp; Fees 2009-10 (out-of-state)</th>
<th>% Living on Campus</th>
<th>2008 % Pell Eligible</th>
<th>Average 2004-2007 Freshman Retention Rate</th>
<th>Average Graduation Rate</th>
<th>Fall 2008 Accept Rate</th>
<th>Fall 2008 SAT 25-75%</th>
<th>U.S. News Ranking 2010 (America's Best Colleges)</th>
</tr>
</thead>
<tbody>
<tr>
<td>College A</td>
<td>$30,100</td>
<td>$30,100</td>
<td>80%</td>
<td>23%</td>
<td>61.8%</td>
<td>36.0%</td>
<td>61.6%</td>
<td>780-1030</td>
<td>Univ-Master's (South), Tier 3</td>
</tr>
<tr>
<td>College B</td>
<td>$20,300</td>
<td>$20,300</td>
<td>75%</td>
<td>28%</td>
<td>62.2%</td>
<td>42.3%</td>
<td>44.7%</td>
<td>910-1110</td>
<td>National Universities, Tier 4</td>
</tr>
<tr>
<td>College C</td>
<td>$26,400</td>
<td>$26,400</td>
<td>78%</td>
<td>45%</td>
<td>62.7%</td>
<td>41.0%</td>
<td>61.5%</td>
<td>860-1040</td>
<td>National Universities, Tier 4</td>
</tr>
<tr>
<td>College D</td>
<td>$22,482</td>
<td>$22,482</td>
<td>82%</td>
<td>29%</td>
<td>74.2%</td>
<td>55.0%</td>
<td>49.0%</td>
<td>1000-1170</td>
<td>Univ-Master's (South), Tier 1/23</td>
</tr>
<tr>
<td>College E</td>
<td>$32,104</td>
<td>$32,104</td>
<td>87%</td>
<td>29%</td>
<td>78.5%</td>
<td>61.0%</td>
<td>66.1%</td>
<td>1020-1225</td>
<td>Liberal Arts Colleges, Tier 3</td>
</tr>
<tr>
<td>College F</td>
<td>$36,220</td>
<td>$36,220</td>
<td>79%</td>
<td>25%</td>
<td>85.0%</td>
<td>67.3%</td>
<td>53.2%</td>
<td>1110-1300</td>
<td>Univ-Master's (South), Tier 1/1</td>
</tr>
<tr>
<td>College G</td>
<td>$36,188</td>
<td>$36,188</td>
<td>85%</td>
<td>25%</td>
<td>89.8%</td>
<td>74.3%</td>
<td>38.6%</td>
<td>1190-1380</td>
<td>National Universities, Tier 1/50</td>
</tr>
</tbody>
</table>
Interviews and Focus Groups

• Conduct interviews and focus groups
  • What are the profiles of students who persist versus attrit?
  • Is there a feedback loop between retention/recruitment functions?
  • Is there a gap between image and reality?
  • What are the strengths/weaknesses of the educational experience?
  • How can campuses improve academics, scheduling, student life, student services?
  • Do undergraduates believe that University X is worth the cost?
Putting it All Together

• Triangulate findings from old and new research
• Develop recommendations grounded in empirical data and best practices
• Model solutions/best practices
• Conduct pilot programs
• Continuous improvement
Early Warning Signs

• First step is to develop the “at risk” list or profile
• Second step is to have “safety net” services to offer
  • Early attendance or progress checks
  • Academic support services and career advising
  • Peer-to-peer mentoring
  • Mandatory study halls
Early Warning Systems: Retention-Intervention Timeline

**PROACTIVE**
- Orientation & Convocation
- New student seminar
- Mid-term grades

**REACTIVE**
- “Red flag” procedures
- Exit interviews/surveys
- Post-withdrawal surveys
- Re-recruitment of withdrawals

**Source:** Dr. Joseph Cuseo, Associate Professor of Psychology
Marymount College, Palos Verdes, CA
How Do We Know What Interventions Are Working?

- Capture participation data and then compare retention of participants and non-participants.
- Conduct more detailed analysis of subpopulations.
- Conduct pilot programs.
Building Connections

Guided by data, driven by service

• Orientation
• Campus employment
• Advising
• Linked courses and Freshman Interest Groups
• Finding an academic home - undeclared
Other Strategies

- Improved collaboration and communication between academic affairs and student development
- Improved integration of academic advising, career counseling, and student transactional services
- Access to online self-service tools/portals
- More institutional research/data mining/measurement
Other Strategies

- Appointment Director of Outcomes Assessment
- Appointment of an Associate Provost with primary responsibility for retention
- Curricular initiatives (General Education)
- Holistic models of student development/success
Conclusion/Lessons Learned

• Although retention is everyone’s responsibility, someone needs to be in charge
• Conduct pilot programs
• Feedback loops and measurable goals are critical
• Survey tools → table analysis → Predictive modeling
• Retention = Early identification + (Early + Intensive + Continuous) Intervention - Seidman
Questions / Discussion
Contact Us

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