Retention Analysis – What I Learned

Presentation to EAC on 4/27/2012 by R.H. Davis

Problem Statement:
About 55% of entering freshmen graduate from engineering - Can we meet our goal of 70% by 2020?

Benchmark Data:

**ASEE:** 56% 6-yr graduation rate (22 publics)
Female higher, URM lower

**MIDFIELD:** 57% 8th-semester persistence rate (9 SE publics)
About 90% of these students will graduate w/in 6 years
Large spread in persistence: 37%-67% for 9 schools
GPA at departure: 23% < 2.0, 57% 2.0-3.0, 20% > 3.0

Two Studies for Our College:

Study 1: Fall 2010 Entering Freshmen
Study 2: AY2010-11 Graduating & Departing Students

At 57% 6-year graduation rate (3-yr avg), CU is near the middle – we want to be near the top!
Study 1 – Analysis of Fall 2010 Entering Freshmen

715 freshmen entered CU Engineering in Fall 2010

As of Fall 2011, their outcomes were:
593 (82.9%) “Stayers” (still enrolled in CU Engr)
49 (6.9%) “Transfers” (transferred within CU-Boulder)
73 (10.2%) “Leavers” (no longer enrolled at CU-Boulder)

First-year performance metrics for these groups are:

- Stayers: 3.08 avg GPA
- Transfers: 2.85 avg GPA
- Leavers: 2.14 avg GPA
First-year Analysis by Gender & Ethnicity

Gender: 543 (75.9%) men & 172 (24.1%) women entered Fall 2010

Female: Average GPA 3.08
- Stayers 85.2%
- Leavers 5.3%
- Transfers 9.5%

Male: Average GPA 2.94
- Stayers 82.7%
- Leavers 11.8%
- Transfers 5.5%

Good news!

Ethnicity: 93 (13.0%) URMs & 622 (87.0%) non-URMs entered Fall 2010

URMs: Average GPA 2.62
- Stayers 77.4%
- Leavers 16.1%
- Transfers 6.5%

non-URMs: Average GPA 3.03
- Stayers 83.8%
- Leavers 9.3%
- Transfers 6.9%

Improvements sought in URM performance & retention
First-year Analysis by Residency & Residence

Residency: 468 (65.5%) CO residents & 247 (34.5%) nonresidents entered Fall 2010

Residents: Average GPA 3.04
- Stayers: 85.4%
- Leavers: 9.0%
- Transfers: 5.6%

Nonresidents: Average GPA 2.86
- Stayers: 78.1%
- Leavers: 12.6%
- Transfers: 9.3%

Residence: 125 (17.5%) lived in Andrews, 308 (43.1%) in E-Quad & 282 (39.4%) elsewhere

Andrews: Average GPA 3.24
- Stayers: 86.4%
- Leavers: 9.6%
- Transfers: 4.0%

Engr Quad: Average GPA 2.96
- Stayers: 86.0%
- Leavers: 7.5%
- Transfers: 6.5%

Other Res: Average GPA 2.87
- Stayers: 78.0%
- Leavers: 13.5%
- Transfers: 8.5%

Big bang, low cost!

Strong correlation of retention with engineering residence
The students who take (and pass) our “common” freshman courses, are more likely to be retained.
Study 2 - Graduates from CU Engineering in 2010-11

581 engineering students received undergraduate degrees from CU-Boulder in AY2010-11

<table>
<thead>
<tr>
<th>GPA at graduation</th>
<th>% with GPA ≥ 3.00</th>
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</thead>
<tbody>
<tr>
<td>2.00-2.49: 17 (3%)</td>
<td>Men: 67%</td>
</tr>
<tr>
<td>2.50-2.99: 155 (26%)</td>
<td>Women: 83%</td>
</tr>
<tr>
<td>3.00-3.49: 249 (43%)</td>
<td>URM: 52%</td>
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<tr>
<td>3.50-4.00: 160 (28%)</td>
<td>non-URM: 72%</td>
</tr>
</tbody>
</table>

Less than 3% graduated with GPA < 2.5
Study 2 - Departures from CU Engineering in 2010-11

287 undergraduate engineering students left the college in AY2010-11 without graduating, after entering as freshmen in Fall 2005-2010

GPA at departure

<table>
<thead>
<tr>
<th>GPA Range</th>
<th>Number (Percentage)</th>
</tr>
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<tbody>
<tr>
<td>0.00-2.49</td>
<td>155 (54%)</td>
</tr>
<tr>
<td>2.50-2.99</td>
<td>62 (22%)</td>
</tr>
<tr>
<td>3.00-3.49</td>
<td>41 (14%)</td>
</tr>
<tr>
<td>3.50-4.00</td>
<td>29 (10%)</td>
</tr>
</tbody>
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% with GPA ≥ 2.50

- Transfers: 61%
- Leavers: 37%
- Lower-div: 49%
- Upper-div: 40%
- Men: 45%
- Women: 52%

Could we “save” as many as one-third, to meet 70% retention goal?
Summary & Strategies for Improvement

Do most students leave as freshmen?
Not quite – 43% of departures were before sophomore year

Do most students leave in good standing?
About half leave with GPA ≥ 2.5

Do most transfer within CU-Boulder?
Only about 40% transfer within CU-Boulder

Are there 1st-yr experiences that correlate with retention?
Yes – residence halls & courses are examples

Strategies to improve retention
1. Proper placement in math & science courses
2. Increased support in first-year courses
3. Engagement in residence halls & special programs
4. Continued strategy of increased quality and diversity

More to learn, more to do

Thank you, retention taskforce!