Forecasting Enrollment

Using Historical Trends to Project Enrollment

2008 AACRAO CONFERENCE

WEDNESDAY MARCH 26, 2008
1:00 – 2:00 PM

SESSION: 425 / G2

JANET WARD
ASSOCIATE VICE PRESIDENT
Session overview

Institutional Goals

Assessment Informs Future Goals

Key Performance Indicators

Enrollment Projections & Tracking Trends

Benchmarks – specific points in time

Assessment Informs Future Goals

Key Performance Indicators

Enrollment Projections & Tracking Trends

Benchmarks – specific points in time
Enrollment projections are tied to

1. Understanding the primary drivers that impact enrollment & revenue outcomes
2. Analyzing current trends
3. Using this information to influence future strategy & resource decisions.
Drivers that influence enrollment & budget

Enrollment forecasting requires the balancing of multiple factors to achieve stated goals.

- **Enrollment Factors**
  - Recruitment = New Students
  - Retention = Continuing Students

- **Budget Factors**
  - Cost of Attendance
  - Revenue (Headcount x Credits x Tuition Rate)
  - Financial Aid Expenditure
Guidelines for forecasting enrollment

- Establish timeline with stakeholders; on-going communication
- Determine critical benchmarks & track progress towards goals at specific points in time
- Know where opportunities exist to adjust strategy
- Build trend lines for key performance indicators
- Refine models overtime (change)
Recruitment drivers

Prospect & applicant pool – knowing who is most likely to make commitment to come & to stay

Effective communication plan throughout recruitment & admission phase

Affordability – sticker price vs. out of pocket costs

Connections to your institution

The “Personal Factor”
What are the drivers that influence enrollment and budget goals?

**New Students KPI’s**
- # Applications
- % Completed Applications
- Admit Rate
- Enrolled/Yield

**Total by Type** (high school, transfer, by program, etc.)

**By Segment** – critical to achieve institutional goals
New student benchmarks -- example

**New Student Tracking -- Benchmarks**

<table>
<thead>
<tr>
<th>High School</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Census-Apps</td>
<td>1,699</td>
<td>1,900</td>
<td>1,809</td>
<td>1,921</td>
<td>2,112</td>
<td>2,171</td>
</tr>
<tr>
<td>% Change</td>
<td>11.8%</td>
<td>-4.8%</td>
<td>6.2%</td>
<td>9.9%</td>
<td>2.8%</td>
<td></td>
</tr>
<tr>
<td>Completed Apps</td>
<td>1,564</td>
<td>1,778</td>
<td>1,714</td>
<td>1,858</td>
<td>2,001</td>
<td>2,055</td>
</tr>
<tr>
<td>% Completed</td>
<td>92.1%</td>
<td>93.6%</td>
<td>94.7%</td>
<td>96.7%</td>
<td>94.7%</td>
<td>94.7%</td>
</tr>
<tr>
<td>Admits</td>
<td>1,499</td>
<td>1,635</td>
<td>1,592</td>
<td>1,576</td>
<td>1,597</td>
<td>1,753</td>
</tr>
<tr>
<td>% Admit Rate</td>
<td>95.8%</td>
<td>92.0%</td>
<td>92.9%</td>
<td>84.8%</td>
<td>79.8%</td>
<td>85.3%</td>
</tr>
<tr>
<td>Registered</td>
<td>603</td>
<td>683</td>
<td>635</td>
<td>710</td>
<td>622</td>
<td>717</td>
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<tr>
<td>% Yield</td>
<td>40.2%</td>
<td>41.8%</td>
<td>39.9%</td>
<td>45.1%</td>
<td>38.9%</td>
<td>40.9%</td>
</tr>
</tbody>
</table>

**Institution KPI = Admit Rate**
Comparable data on IPEDS based on definition of first-time full-time freshmen: Completed applications / admitted = Admit Rate
Segmenting data to create more useful trends

All Freshmen

New Student Tracking – Benchmarks

<table>
<thead>
<tr>
<th>High School</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
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<td>2,001</td>
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</tr>
<tr>
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<td>1,592</td>
<td>1,576</td>
<td>1,597</td>
<td>1,753</td>
</tr>
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<td>710</td>
<td>622</td>
<td>717</td>
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<td>40.2%</td>
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<td>39.9%</td>
<td>45.1%</td>
<td>38.9%</td>
<td>40.9%</td>
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</table>

Early Action Freshmen

New Student Tracking – Benchmarks

<table>
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<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
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</thead>
<tbody>
<tr>
<td>Fall Census</td>
<td>638</td>
<td>890</td>
<td>853</td>
<td>885</td>
<td>922</td>
<td>952</td>
</tr>
<tr>
<td>% Change</td>
<td>40.4%</td>
<td>-4.2%</td>
<td>3.8%</td>
<td>4.2%</td>
<td>3.3%</td>
<td></td>
</tr>
<tr>
<td>EA as % of Total</td>
<td>46.8%</td>
<td>47.2%</td>
<td>46.1%</td>
<td>43.7%</td>
<td>43.9%</td>
<td></td>
</tr>
<tr>
<td>Copmleted Apps</td>
<td>na</td>
<td>872</td>
<td>841</td>
<td>876</td>
<td>907</td>
<td>936</td>
</tr>
<tr>
<td>% Completed</td>
<td>na</td>
<td>98.0%</td>
<td>98.6%</td>
<td>99.0%</td>
<td>98.4%</td>
<td>98.3%</td>
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<tr>
<td>Admits</td>
<td>599</td>
<td>838</td>
<td>810</td>
<td>799</td>
<td>806</td>
<td>875</td>
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<tr>
<td>% Admit Rate</td>
<td>na</td>
<td>96.1%</td>
<td>96.3%</td>
<td>91.7%</td>
<td>88.9%</td>
<td>93.5%</td>
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<tr>
<td>EA Registered</td>
<td>300</td>
<td>442</td>
<td>377</td>
<td>415</td>
<td>351</td>
<td>405</td>
</tr>
<tr>
<td>% Yield</td>
<td>50.1%</td>
<td>52.7%</td>
<td>46.5%</td>
<td>51.9%</td>
<td>43.5%</td>
<td>46.3%</td>
</tr>
<tr>
<td>EA Reg as % of Total HS Reg</td>
<td>64.7%</td>
<td>59.4%</td>
<td>58.5%</td>
<td>56.4%</td>
<td>56.5%</td>
<td></td>
</tr>
</tbody>
</table>

Segmentation is important in forecasting models when trends show significant differences for KPI’s --- application completion rate and yield rate
New student model: Determining scholarship categories

Build historical trends to understand where the new student KPI’s fall within chart and determine if shift in the line would improve indicator.

- Set goals
- Check benchmarks at specific points in time

* KPI: Apps, Completed Apps, Admit, ENR/Yield by cell
** By segmentation: EA vs. Regular Admission; Mix
Segmentation

Early action vs. Regular admission

Student type: high school, transfer, graduate student

Academic Ability

Mix Goals – Gender, Ethnicity

Program

Similar charts are developed for each segment to record goals and track bi-weekly results for each segment.
Student key performance indicators

**Headcount**
- by total; by student type
- By program or unique tuition rates
- Residential vs. commuters
- Term to term retention rates (by class level)
- Persistence rate for fall entering cohort (return for 2\textsuperscript{nd} fall term)
- Retention rate to junior year by entering cohort
- Graduation rate by cohort
- Ability to pay (financial aid)

**Total Headcount**
- New
- Continuing
- Class Level

**Revenue**
- Full-time vs. Part Time
- Credits

**Registration**
Student persistence drivers

- Individual experience *AFTER ENTRY* are more important to persistence than what has gone before.
Historical trends on retention

Example of model used to project continuing student flow patterns from spring to fall, fall to winter, winter to spring.

**Question:** For 2000-01 projection model, which average to use? Actual Mean Average for last 3 yrs?

### Forecasting retention by class level between terms

*example – flow from fall to winter*

<table>
<thead>
<tr>
<th>Year</th>
<th>FRESHMAN winter HC</th>
<th>fall fresh</th>
<th>Ratio</th>
<th>SOPHMORE winter HC</th>
<th>fall soph</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>92-93</td>
<td>443</td>
<td>580</td>
<td>0.763793</td>
<td>408</td>
<td>469</td>
<td>0.869936</td>
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<tr>
<td>93-94</td>
<td>435</td>
<td>579</td>
<td>0.751295</td>
<td>461</td>
<td>473</td>
<td>0.974630</td>
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<tr>
<td>94-95</td>
<td>481</td>
<td>591</td>
<td>0.813875</td>
<td>451</td>
<td>520</td>
<td>0.867308</td>
</tr>
<tr>
<td>95-96</td>
<td>423</td>
<td>562</td>
<td>0.752669</td>
<td>443</td>
<td>457</td>
<td>0.969365</td>
</tr>
<tr>
<td>96-97</td>
<td>484</td>
<td>602</td>
<td>0.803987</td>
<td>415</td>
<td>461</td>
<td>0.900217</td>
</tr>
<tr>
<td>97-98</td>
<td>576</td>
<td>703</td>
<td>0.819346</td>
<td>456</td>
<td>485</td>
<td>0.940206</td>
</tr>
<tr>
<td>98-99</td>
<td>591</td>
<td>732</td>
<td>0.807377</td>
<td>531</td>
<td>520</td>
<td>1.021154</td>
</tr>
<tr>
<td>99-00</td>
<td>557</td>
<td>682</td>
<td>0.816716</td>
<td>548</td>
<td>585</td>
<td>0.936752</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td>0.791132</td>
<td></td>
<td></td>
<td>0.934946</td>
</tr>
<tr>
<td>Last 3 yrs</td>
<td></td>
<td></td>
<td>0.814479</td>
<td></td>
<td></td>
<td>0.966037</td>
</tr>
</tbody>
</table>

*Review data and discuss with enrollment directors to understand what may cause significant change year to year.*
Financial aid strategy to achieve net revenue goals
- headcount
- need levels of student population
- financial aid strategy (merit & need based)

Financial aid used to influence new student entering class as well as support student outcomes
- increase persistence & graduation rates
- improve student satisfaction
## Net revenue drivers

### Headcount by student type

<table>
<thead>
<tr>
<th></th>
<th>Last Year</th>
<th>This Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Continuing Student Goal</strong></td>
<td>1,589</td>
<td>1,615</td>
</tr>
<tr>
<td>Discount Rate</td>
<td>38.2</td>
<td>38.80</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Headcount</td>
<td>1,520</td>
<td>1,503</td>
</tr>
<tr>
<td># Scholarship</td>
<td>1,200</td>
<td>1,035</td>
</tr>
<tr>
<td>$ Scholarship</td>
<td>$6,543,278</td>
<td>$7,012,035</td>
</tr>
<tr>
<td># Gift Aid</td>
<td>1368</td>
<td>1237</td>
</tr>
<tr>
<td>% Gift Aid</td>
<td>90%</td>
<td>82%</td>
</tr>
<tr>
<td>$ Gift aid</td>
<td>$15,432,180</td>
<td>$11,502,930</td>
</tr>
<tr>
<td>Average SPU Scholarship</td>
<td>$5,453</td>
<td>$6,775</td>
</tr>
<tr>
<td>Average SPU Gift aid</td>
<td>$11,281</td>
<td>$9,299</td>
</tr>
</tbody>
</table>

| Total Net Revenue | $26,724,475 | $23,461,715 |
| Discount Rate     | 36.2%       | 35.8%       |

### Summary data.

Next level of analysis aggregates data by need levels – high, medium, low, no need filer, no need non-filer.
**Chart student need by type of student**
**new high school, transfers, continuing**

### Need Analysis

**Question:** How to forecast the Need Levels for Incoming New Students and Continuing Students? Consider past trends. Consider impact of new students as they become "Continuing" students.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Need</td>
<td>130</td>
<td>77</td>
<td>59</td>
<td>13</td>
<td>18.0%</td>
<td>12.1%</td>
<td>8.6%</td>
<td>2.2%</td>
</tr>
<tr>
<td>High Need</td>
<td>114</td>
<td>106</td>
<td>131</td>
<td>98</td>
<td>15.8%</td>
<td>16.7%</td>
<td>19.2%</td>
<td>16.3%</td>
</tr>
<tr>
<td>Medium Need</td>
<td>119</td>
<td>117</td>
<td>149</td>
<td>128</td>
<td>16.5%</td>
<td>18.4%</td>
<td>21.8%</td>
<td>21.2%</td>
</tr>
<tr>
<td>Low/No Need</td>
<td>359</td>
<td>335</td>
<td>344</td>
<td>364</td>
<td>49.7%</td>
<td>52.8%</td>
<td>50.4%</td>
<td>60.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>722</td>
<td>635</td>
<td>683</td>
<td>603</td>
<td><strong>100.0%</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

**STEPS:**

1. Review your data and establish appropriate Need Levels.
2. Establish baseline goal and use to create model that tracks 1) HDCT goal by Need Level and 2) by Academic Ability
3. Monitor throughout spring/summer to determine if baseline projection is on target for Fall Census.
New student goals by ability & need

Section A (top) outlines the goals

Section B (middle) provides all freshmen summary of information to-date

Section C (bottom) provides break out by high, medium, low, no need filer or no need non-filer; example is Low Need.
### Comparing progress towards goals

#### FINANCIAL AID — GOAL TRACKING

<table>
<thead>
<tr>
<th>A</th>
<th>Enrolment Goals:</th>
<th>Goals</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Group 5</th>
<th>Group 6</th>
<th>Group 7</th>
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<td>15</td>
<td>255</td>
<td>365</td>
<td>380</td>
<td>420</td>
<td>250</td>
<td>175</td>
<td>4</td>
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<tr>
<td>Guideline Bgt - Goal</td>
<td>773</td>
<td>750</td>
<td>10</td>
<td>100</td>
<td>150</td>
<td>158</td>
<td>165</td>
<td>97</td>
<td>70</td>
<td>0</td>
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<tr>
<td>Yield</td>
<td>45.1%</td>
<td>40%</td>
<td>67%</td>
<td>39%</td>
<td>41%</td>
<td>42%</td>
<td>39%</td>
<td>39%</td>
<td>40%</td>
<td>0%</td>
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<table>
<thead>
<tr>
<th>B</th>
<th>Total</th>
<th>Total</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Group 5</th>
<th>Group 6</th>
<th>Group 7</th>
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<tr>
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<td>1713</td>
<td>1860</td>
<td>183</td>
<td>181</td>
<td>445</td>
<td>284</td>
<td>268</td>
<td>148</td>
<td>348</td>
<td>3</td>
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<tr>
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<td>773</td>
<td>887</td>
<td>99</td>
<td>78</td>
<td>213</td>
<td>145</td>
<td>120</td>
<td>59</td>
<td>151</td>
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<td>43.1%</td>
<td>47.9%</td>
<td>51.1%</td>
<td>44.8%</td>
<td>39.9%</td>
<td>43.4%</td>
<td>66.7%</td>
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<table>
<thead>
<tr>
<th>C</th>
<th># Scholarship</th>
<th>$ Scholarship</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Group 5</th>
<th>Group 6</th>
<th>Group 7</th>
<th>Missing</th>
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<td># Scholarship</td>
<td>461</td>
<td>677</td>
<td>99</td>
<td>78</td>
<td>210</td>
<td>121</td>
<td>109</td>
<td>27</td>
<td>33</td>
<td>0</td>
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<tr>
<td>$ Scholarship</td>
<td>$2,933,207</td>
<td>$4,049,664</td>
<td>$1,134,679</td>
<td>$867,790</td>
<td>$1,699,229</td>
<td>$378,924</td>
<td>$475,827</td>
<td>$89,800</td>
<td>$112,359</td>
<td>$0</td>
</tr>
<tr>
<td># Gift Aid</td>
<td>541</td>
<td>780</td>
<td>99</td>
<td>78</td>
<td>212</td>
<td>132</td>
<td>116</td>
<td>46</td>
<td>96</td>
<td>1</td>
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<td>% Gift Aid</td>
<td>0.70%</td>
<td>0.90%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>0.995</td>
<td>0.910</td>
<td>0.987</td>
<td>0.780</td>
<td>0.636</td>
<td>0.500</td>
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<tr>
<td>$ Gift aid</td>
<td>$4,261,244</td>
<td>$7,047,980</td>
<td>$1,245,457</td>
<td>$751,808</td>
<td>$2,049,300</td>
<td>$995,621</td>
<td>$935,380</td>
<td>$309,884</td>
<td>$757,134</td>
<td>$3,396</td>
</tr>
<tr>
<td>Average Scholarship</td>
<td>$8,363</td>
<td>$5,982</td>
<td>$11,461</td>
<td>$8,661</td>
<td>$7,473</td>
<td>$3,132</td>
<td>$4,365</td>
<td>$3,326</td>
<td>$3,405</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>Average Gift aid</td>
<td>$7,877</td>
<td>$9,036</td>
<td>$12,580</td>
<td>$9,639</td>
<td>$9,667</td>
<td>$7,543</td>
<td>$8,064</td>
<td>$6,737</td>
<td>$7,887</td>
<td>$3,396</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D</th>
<th>Total Net Revenue</th>
<th>$8,251,380</th>
<th>$10,093,247</th>
<th>$708,407</th>
<th>$787,600</th>
<th>$2,154,468</th>
<th>$1,896,214</th>
<th>$1,432,940</th>
<th>$854,540</th>
<th>$2,223,002</th>
<th>$36,076</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount Rate</td>
<td>34%</td>
<td>40%</td>
<td>60%</td>
<td>46%</td>
<td>46%</td>
<td>41%</td>
<td>37%</td>
<td>25%</td>
<td>24%</td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>

Below this section – break out by various Need Categories as established – High, Medium, Low, No-need filer, No-need Non-filer
Enrollment forecasting by program

Enrollment Drivers:
- Price
- Net Revenue
- New Student Headcount
- Average credits per student
- Prior quarter continuing student flow pattern
- Program capacity – total students and new students
  - facilities
  - faculty resources
  - services

Challenges:
- Programs are unique
- Competition
- Market sensitivity tied to adult learners
- Resources
- Longer timeline in admission funnel
- Front end data is essential
Enrollment model by program

Drivers in the model

A: Program capacity based on resources (faculty & facilities)

B: Tuition rate

C: New students

D: Avg. credits per headcount: calculation

E: Prior quarter student flow: based on recent history

D: Average credits per headcount (actual)
   Total Credits (G8) divided by Total Headcount (G11)

E: Continuing students headcount projection
   Prior Q HDCT (G11) x Student Flow (H15)=Spring 06
   Continuing Stu HDCT (H13)
Dashboards

Progress toward institutional goals

Ability to compare with selected peers

Visual presentation for administration

IPEDS provides reliable source for key performance indicators for undergraduate enrollment

Six Year Graduation Rate

- 2002: 61%
- 2003: 63%
- 2004: 61%
- 2005: 67%
- 2006: 65%

Year Ending

Seattle Pacific University, 25th Percentile, 75th Percentile
Dashboard: Key Performance Indicators

Undergraduate Admission Indicators / Selectivity & Enrollment Mix

- **% Growth in App Pool**
  - Median: 4.2%

- **Admit Rate**
  - Below 25%: 80%

- **Yield Rate**
  - 75th%: 39%

Undergraduate Enrollment Outcomes

- **Graduation Rate**
  - Between 25% & Mean: 65%

- **Persistence Rate**
  - 75th%: 87%

- **% With Debt**
  - Median: 65%
Dashboard: key performance indicators

Admit Rate

- Seattle Pacific University
- 75th Percentile
- 25th Percentile

- 2002: 97%
- 2003: 92%
- 2004: 88%
- 2005: 82%
- 2006: 80%

Fall Quarter/Semester

75th Percentile
25th Percentile
Where to begin?

**Determine critical information needed and begin data collection**
Excel, access, frozen data tables/information system, data warehouse

**Verify data quality**
accurate, complete, shared definition & metrics

**Identify key benchmarks**
points in time when data must be gathered and compared to build historical trends

**Data segmentation**
start with macro then identify sub-sets

**Holistic approach to data management**
requires buy-in from “data managers” (create / manage data)

**Build baseline year**
assess effectiveness and refine over time
Forecasting Enrollment

Using Historical Trends to Project Enrollment

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