Common Intellectual Practices (High Impact Practices)

Hypothesis: Based upon the concept of the importance of common intellectual practices (High Impact Practices)

- The more classes students take with one another, the more a cohort effect takes place, a community is built, students experience common intellectual practices, and students help one another.
- These effects could then ultimately positively impact student graduation rates.

Methodology

Statistical analysis
- Dependent variable = Overall Graduation Rates
- Independent variables
  - Total Core Course Units as Percent of Total Number of Units in the Major
  - Recorded Major, Department, and College

Data Visualization techniques
- Box plots, line graphs

Data Sources and Collection

SF State 2013-2014 Bulletin—used to allow enough time for graduations
- Reviewed all Undergraduate Majors in 2013-2014 Bulletin
- Counted Number of Units in Core and Total Major
- Results- 109 Majors of usable data
- Recorded Major, Department, and College
- Office of Institutional Research
- Obtained 4 year graduation rates from Office of Institutional Research at SF State

Research Question

Does the size of the core curriculum taken by all students in their Major affect graduation rates?

Table 1: Number of Units in Core and Major By College

<table>
<thead>
<tr>
<th>College of Business</th>
<th>College of Ethnic Studies</th>
<th>Grad School College of Education</th>
<th>College of Health Science and Social Science</th>
<th>College of Liberal and Creative Arts</th>
<th>College of Science and Engineering</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Number of Units in Core (Std. Dev.)</td>
<td>38.9 (12.0)</td>
<td>16.0 (12.5)</td>
<td>36.0 (6.5)</td>
<td>23.6 (14.6)</td>
<td>15.3 (9.1)</td>
<td>41.3 (22.0)</td>
</tr>
<tr>
<td>Mean Number of Total Units in Major (Std. Dev.)</td>
<td>57.7 (8.5)</td>
<td>39.0 (0.0)</td>
<td>36.0 (6.5)</td>
<td>57.3 (13.7)</td>
<td>44.4 (8.9)</td>
<td>61.5 (18.9)</td>
</tr>
<tr>
<td>Core as % of Total Major (Std. Dev.)</td>
<td>66.0% (15.1)</td>
<td>41.0% (32.0)</td>
<td>100%</td>
<td>39.6% (25.3)</td>
<td>34.3% (20.0)</td>
<td>60.0% (20.0)</td>
</tr>
</tbody>
</table>

Figure 1: Differences in Overall 4 Year Graduation Rates By College (Differences Between Colleges are Statistically Significant)

Figure 2: Core Courses As % of Total Major Units (Differences Between Colleges are Statistically Significant)

Figure 3-6: Data Visualizations of Core Units by Majors By College

Table 2: Regression Results: 5 Graduation Rates by Total Core Units as % of Total Units in Major

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Beta: Size of Core</th>
<th>R²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Year Overall Graduation Rate</td>
<td>-0.141***</td>
<td>0.020</td>
<td>1.94</td>
</tr>
<tr>
<td>4 Year Under-Represented Minorities Graduation Rate</td>
<td>-0.153***</td>
<td>0.024</td>
<td>1.686</td>
</tr>
<tr>
<td>4 Year Non-URM Graduation Rate</td>
<td>-0.097</td>
<td>0.009</td>
<td>0.868</td>
</tr>
<tr>
<td>4 Year Graduation Rate Pell Eligible</td>
<td>-0.237**</td>
<td>0.056</td>
<td>5.58*</td>
</tr>
<tr>
<td>4 Year First Generation Rate</td>
<td>-0.222*</td>
<td>0.037</td>
<td>3.882*</td>
</tr>
<tr>
<td>4 Year Female Rate</td>
<td>-0.010</td>
<td>0.000</td>
<td>0.008</td>
</tr>
</tbody>
</table>

Conclusions

- Figure 1: Colleges have statistically different graduation rates.
- Table 1, Figure 2: Colleges have statistically different numbers and percentages of the shares of core courses within their majors.
- Figures 3-7: Only in the College of Business is there a statistically significant relationship between Core Units as % of Total Major Units and Overall Graduation rates— and that is at least partially due to one outlier.
- Table 2: Against 6 separate measures of graduation rates, the % Core in the Major was statistically significant 4 times— for Overall Graduation Rate, Under-Represented Minority Graduation Rate, Pell Eligible Graduation Rate, and First Generation Graduation Rate.
- Flexibility in majors, therefore, may be one answer to helping students graduate in a more timely fashion. With fewer bottleneck courses, students can get courses and graduate sooner.

Discussion: We speculate this is due to difficulties in obtaining classes, particularly with larger numbers of core courses which all students in the major then have to take, possibly creating bottleneck courses. The larger the core of the major, therefore, the lower the graduation rate.