New Strategies for Assessing the Impact of High-Impact Practices

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Introduction

• Proliferation of High-Impact Practices

• National calls for:
  • Rigorous research and assessment
    • Using different types of data
    • Looking at multiple institutions
    • Using appropriate control groups
  • New ways of demonstrating the impact
  • Testing the impact while scaling up
  • Who is impacted
Agenda

1. Using campus wide surveys to assess the impact of UR on retention, GPA, and graduation
2. Designing quasi-experimental research to address self-selection bias
3. Collaborative assessment across multiple institutions
4. Student Transformative Learning Record (STLR) program
5. Discussion and open questions
Using campus wide surveys to assess the impact of UR on retention, GPA, and graduation
Gathering Data

In-house Database
• Control over data
• Know the intensity of interaction
• High effort level to establish and maintain

Campus-wide Surveys
• Broader dataset
Using Data

• Internal evaluation of milestones
• Working with external evaluators and other institutions
• Reporting to administration
• Convincing partners and participants
Internal Evaluation of Milestones

Number of students at Cal Poly Pomona, Fall 2018: ~ 24,000

Number of unique students that participated in OUR activities in 2017-2018 AY: 930 (since inception in 2013: 2,767)

Sample of internal milestone: By June 2018, increase the campus participation of first-generation, low-income, and URM students by 10% as compared to campus Fall 2015 data.

| G1M1: Participation of first-generation, low-income, and URM students in 2015, 2016, and 2017 Academic Year |
|--------------------------------------------------------|-----------------|-----------------|-----------------|
|                                                       | 2015            | 2016            | 2017            |
| First Generation                                      | 53%             | 54%             | 58%             |
| Low-Income                                            | 39%             | 36%             | 50%             |
| URM Students                                          | 40%             | 49%             | 49%             |
Cal Poly Pomona Institutional Effectiveness Indicator: Increase the percentage of students who participate in research and research-related activities from 37% (Fall 2017) to 40% by July 2020 and to 42% by July 2022 (Annual Fall Survey)

<table>
<thead>
<tr>
<th>College</th>
<th>#</th>
<th>%</th>
<th>Overall CPP Pop %</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>97</td>
<td>10.4</td>
<td>8</td>
<td>+ 2.4%</td>
</tr>
<tr>
<td>Business Administration</td>
<td>34</td>
<td>3.7</td>
<td>19</td>
<td>- 15.3%</td>
</tr>
<tr>
<td>Educ &amp; Integrative Studies</td>
<td>10</td>
<td>1.1</td>
<td>6</td>
<td>- 4.9%</td>
</tr>
<tr>
<td>Engineering</td>
<td>355</td>
<td>38.2</td>
<td>23</td>
<td>+ 15.2</td>
</tr>
<tr>
<td>Environmental Design</td>
<td>8</td>
<td>0.9</td>
<td>6</td>
<td>- 5.1%</td>
</tr>
<tr>
<td>Hospitality Management</td>
<td>3</td>
<td>0.3</td>
<td>4</td>
<td>- 3.7%</td>
</tr>
<tr>
<td>Letters, Arts, &amp; Social Sci</td>
<td>129</td>
<td>13.9</td>
<td>15</td>
<td>- 1.1%</td>
</tr>
<tr>
<td>Science</td>
<td>240</td>
<td>25.8</td>
<td>15</td>
<td>+ 10.8%</td>
</tr>
</tbody>
</table>
Designing quasi-experimental research to address self-selection bias
Combating Biases

**UNCG Demographics Snapshot (current)**

- Enrollment = 20,106 students
  - 16,773 undergraduates
- ~ 67% Female
- ~ 46% URM
- ~ 51% Pell Grant Eligible

**Study Focus – students supported by the URSCO**

- 2006 – 2012
- n = 328
  - ~ 67% Female
  - ~ 35% URM
Combating Biases

• Methodology
  • Create a Comparison Cohort
    • Criteria:
      • Race
      • Gender
      • Age
      • SAT Scores
      • Academic Discipline
      • Class level – relative to the undergraduate researchers
    • Control Group (n = 1,948)
      • 328 randomly selected
      • T-test run to ensure equity between groups
  • Analyses (focused on GPA, Persistence, Graduation Rates)
    • SPSS 21
    • Chi-Square, T-Tests, and one-way ANOVA
## Cohort Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Researcher Cohort</th>
<th>Comparison Cohort</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>69%</td>
<td>75%</td>
<td>72%</td>
</tr>
<tr>
<td>Other</td>
<td>31%</td>
<td>25%</td>
<td>28%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>67% Female</td>
<td>65% Female</td>
<td>66% Female</td>
</tr>
<tr>
<td><strong>Birth Year</strong></td>
<td>1985.6</td>
<td>1986.3</td>
<td>1985.9</td>
</tr>
<tr>
<td><strong>SAT Score</strong></td>
<td>1139.6</td>
<td>1116.6</td>
<td>1128.1</td>
</tr>
<tr>
<td><strong>Matriculation</strong></td>
<td>39% Transfer</td>
<td>41% Transfer</td>
<td>40% Transfer</td>
</tr>
</tbody>
</table>
Combating Biases

• Results
  • GPA
    • Overall:
      3.52 Researchers vs 3.04 Comparison
    • 4yr Grads
      3.48 Researchers vs 2.98 Comparison
    • 6 yr Grads
      3.36 Researchers vs 2.77 Comparison

• Persistence
  • Determined to be an inappropriate question for this type of study
Combating Biases

• Results
  • Graduation Rate
    • Additional points for comparison:
      • 4 year graduation rate = ~30%
      • Female = 32.7%    Male = 22.2%
      • Non-White = 23.9%  White = 32%
    • Students in both cohorts graduate at rates significantly greater than the general student body.
    • While the graduation rates of the “researchers” cohort are impressively greater than the “comparison” cohort, the current population limits the ability of Pearson Chi-Square and Cramer’s V to show any statistical linkage between cause and effect.
## Graduation Rates
(all included in study)

<table>
<thead>
<tr>
<th>Population</th>
<th>n</th>
<th>Graduated in 4 years or less</th>
<th>Graduated in 6 years or less</th>
<th>Graduated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Researchers Cohort</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Researchers Cohort</td>
<td>328</td>
<td>65.85%</td>
<td>90.55%</td>
<td>92.99%</td>
</tr>
<tr>
<td>New Entry</td>
<td>200</td>
<td>59.50%</td>
<td>92.50%</td>
<td>95.00%</td>
</tr>
<tr>
<td>Females</td>
<td>219</td>
<td>67.12%</td>
<td>92.69%</td>
<td>94.52%</td>
</tr>
<tr>
<td>Males</td>
<td>109</td>
<td>63.30%</td>
<td>86.24%</td>
<td>89.91%</td>
</tr>
<tr>
<td>Non-White</td>
<td>102</td>
<td>66.67%</td>
<td>95.10%</td>
<td>95.10%</td>
</tr>
<tr>
<td>White</td>
<td>226</td>
<td>65.49%</td>
<td>88.50%</td>
<td>92.04%</td>
</tr>
<tr>
<td><strong>Comparison Cohort</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparison Cohort</td>
<td>328</td>
<td>50.91%</td>
<td>82.93%</td>
<td>85.67%</td>
</tr>
<tr>
<td>New Entry</td>
<td>193</td>
<td>47.67%</td>
<td>79.27%</td>
<td>84.97%</td>
</tr>
<tr>
<td>Females</td>
<td>215</td>
<td>51.63%</td>
<td>82.33%</td>
<td>84.65%</td>
</tr>
<tr>
<td>Males</td>
<td>113</td>
<td>49.56%</td>
<td>84.07%</td>
<td>87.61%</td>
</tr>
<tr>
<td>Non-White</td>
<td>82</td>
<td>54.88%</td>
<td>87.80%</td>
<td>89.02%</td>
</tr>
<tr>
<td>White</td>
<td>246</td>
<td>49.59%</td>
<td>81.30%</td>
<td>84.55%</td>
</tr>
<tr>
<td><strong>All Students</strong></td>
<td>656</td>
<td>58.38%</td>
<td>86.74%</td>
<td>89.33%</td>
</tr>
</tbody>
</table>
Graduation Rates
(first-time/new entry)

<table>
<thead>
<tr>
<th>Population</th>
<th>n</th>
<th>Graduated in 4 years or less</th>
<th>Graduated in 6 years or less</th>
<th>Graduated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researchers Cohort</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>144</td>
<td>61.81%</td>
<td>93.75%</td>
<td>95.14%</td>
</tr>
<tr>
<td>Male</td>
<td>56</td>
<td>53.57%</td>
<td>89.29%</td>
<td>96.43%</td>
</tr>
<tr>
<td>Non-White</td>
<td>60</td>
<td>55.00%</td>
<td>98.33%</td>
<td>98.33%</td>
</tr>
<tr>
<td>White</td>
<td>140</td>
<td>61.43%</td>
<td>90.00%</td>
<td>94.29%</td>
</tr>
<tr>
<td>Comparison Cohort</td>
<td>193</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>132</td>
<td>50.76%</td>
<td>85.61%</td>
<td>87.88%</td>
</tr>
<tr>
<td>Male</td>
<td>61</td>
<td>22.95%</td>
<td>72.13%</td>
<td>78.69%</td>
</tr>
<tr>
<td>Non-White</td>
<td>52</td>
<td>40.38%</td>
<td>82.69%</td>
<td>86.54%</td>
</tr>
<tr>
<td>White</td>
<td>141</td>
<td>42.55%</td>
<td>80.85%</td>
<td>84.40%</td>
</tr>
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</table>
Collaborative assessment across multiple institutions
Collaborative Assessment

• Why collaborate
  • Leverage the power of smaller programs
  • Be able to generalize beyond your amazing program

• How to collaborate
  • Find common goals and means of measuring those goals
  • Find common data points
Collaborative Assessment

• Across campus collaborations
  • HIPs with common interventions
  • HIPs with common outcomes

• Across institutions
  • Find similar programs/interventions at other institutions
  • Sharing data
    • STLR, national surveys, IR data
Student Transformative Learning Record (STLR) program
Student Transformative Learning Record

• Meaningful and measurable impact of HIPs

• Assessment of beyond-disciplinary skill development

• Capture students’ reflections about their own learning and about the impact faculty and/or the class have on them

• Process to build transformative realizations across the arc of student development in the undergraduate degree
• Evidence- & badge-based process that includes faculty training in authentic assessment and use of rubrics

• Provides mechanisms & training to implement an institution-wide, curricular and co-curricular developmental process to help students become better employees, grad students, and citizens

• STLR is: scalable, replicable, platform-agnostic, free
Student Transformative Learning Record

UCO

21st Century Work & Life Skills
- can receive/give constructive feedback
- gets along with management
- creative
- innovative
- self-driven
- self-directing

Health & Wellness
- able to collaborate
- open-minded
- works with all types of people
- cultural awareness

Service Learning & Civic Engagement
- adaptable
- conscientiousness
- political & organizational acumen
- emotional intelligence
- conflict resolution

Global & Cultural Competencies
- has initiative
- willing/wants to learn

Leadership
- coaching ability

Research, Creative & Scholarly Activities
- problem solving skill
- critical thinking skill
- communication skill
- writing skills
- academically sound

STLR Employer Advisory Board identifies skills along “STLR Metro” lines representing UCO’s Central Tenets

From a concept visualized by Ireland’s National Forum for the Enhancement of Teaching & Learning in Higher Education:
http://www.stlarb.ie/
Cohort 1 Second Year SAM Retention*

Non-Priority Population
First-Time, Full-Time Freshman
Fall 2015 - Fall 2017 (N=794)
- High STLR 77%†
- Low STLR 78%†
- No STLR 60%

Title III Grant Priority** Population
First-Time, Full-Time Freshman
Fall 2015 - Fall 2017 (N=1,467)
- High STLR 73%†
- Low STLR 72%†
- No STLR 59%

† An ANOVA Test indicated results are statistically significant at p < .001
*Includes confidence intervals at 95%.
**Priority Population Definition: Low socio-economic status, first generation, underrepresented minorities. "Low STLR": Engaged only through attending STLR-tagged events and automatically assigned lowest level of achievement ("exposure"); "High STLR": Created a learning artifact assessed using STLR rubrics.
Council on Undergraduate Research

Questions and Discussion