Does Research Inform the Practice of Assessing Student Learning?

The case of NSSE 1.0

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US News Rankings: Uses & Problems

Unclear as to how rankings are developed

Most ranking based on selectivity measures (SAT scores)

Lack of information as to the extent rankings predict quality

Emphasis on selectivity reduces access for low income & minority students
Student Learning as an Alternative to Rankings
(Chronicle, October 22, 1999)

“Unless we develop measures of quality where colleges can actually provide evidence of their contribution to student learning, then this whole system [of ranking colleges] turns on resources and reputation, and reinforces the elitism of higher education.”

Russell Edgerton. Pew Charitable Fund

NSSE 5 Benchmarks of Effective Educational Practice

Created using theory and exploratory factor analysis (Pike, Kuh, McCormick, Ethington & Smart, 2011)

The five Benchmarks are:
- Level of Academic Challenge (LAC)
- Active and Collaborative Learning (ACL)
- Enriching Educational Experiences (EEE)
- Student-Faculty Interaction (SFI)
- Supportive Campus Environment (SCE)

Each benchmark measured on a score of 0-100 in order “to facilitate comparisons across time, as well as between individual institutions and types of institutions” (NSSE, 2009).
How are NSSE benchmarks affecting:

- Public perceptions?
- Institutions?
- Organizations of Higher Education?
- Decisions?

Vast participation: In 2009, 1400 institutions participated

USA Today: In 2009, 443 institutions posted benchmark scores


Voluntary System of Accountability (VSA): sponsored by AASCU & APLU

From a Research Perspective:

Two Key Questions for appraising NSSE 1.0

- Does NSSE inform practice about the different aspects of student engagement among seniors?

- Could faculty and administrators use NSSE to predict cumulative Academic Performance among seniors?
Are NSSE’s 5-Benchmarks a solution?

Three properties of a good instrument

- It should give you consistent results
- It should tell you about the different attributes of what you seek to measure

And, above all, it should allow you to predict relevant outcomes
Finding #1:

Only two benchmarks are reliable: Student Faculty Interactions & Supportive Campus Environment
Considerable amount of measurement error in 3 benchmarks (particularly Enriching Educational Experiences)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Reliability</th>
<th>Average % of Error Across Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Academic Challenge</td>
<td>0.661</td>
<td>79%</td>
</tr>
<tr>
<td>Active &amp; Collaborative Learning</td>
<td>0.618</td>
<td>79%</td>
</tr>
<tr>
<td>Student Faculty Interactions</td>
<td>0.708</td>
<td>64%</td>
</tr>
<tr>
<td>Enriching Educational Experiences</td>
<td>0.543</td>
<td>84%</td>
</tr>
<tr>
<td>Supportive Campus Environment</td>
<td>0.758</td>
<td>63%</td>
</tr>
</tbody>
</table>

Implications for benchmarks scores when poorly assessed

Source: LaNasa, Cabrera & Tangsrud (2009)
Finding # 2:

NSSE 1.0 benchmarks do not appear to appraise different aspects of engagement with college. They correlate substantially among themselves.

<table>
<thead>
<tr>
<th>NSSE 1.0 Benchmarks</th>
<th>LAC</th>
<th>ACL</th>
<th>SFI</th>
<th>EEE</th>
<th>SCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Academic Challenge (LAC)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active &amp; Collaborative Learning (ACL)</td>
<td>0.687</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student-Faculty Interactions (SFI)</td>
<td>0.633</td>
<td></td>
<td>0.864</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Enriching Educational Experiences (EEE)</td>
<td>0.593</td>
<td></td>
<td></td>
<td>0.663</td>
<td>1.00</td>
</tr>
<tr>
<td>Supportive Campus Environment (SCE)</td>
<td>0.435</td>
<td></td>
<td>0.490</td>
<td>0.600</td>
<td>0.516</td>
</tr>
</tbody>
</table>

Finding # 3:

The 5 NSSE 1.0 Benchmarks did not predict cumulative GPA among seniors.
Conclusions

The changing paradigm from US News rankings to measuring student engagement is both courageous and more reflective of institutional quality.

Yet, if NSSE 1.0’s 5 benchmarks are not sound....

- What meaning practitioners and policy makers could make of the scores if the corresponding benchmark has lots of measurement error?
- Can the benchmark scores inform intervention strategies to improve undergraduates’ educational experiences if it is not possible to distinguish among overlapping benchmarks?
- Can those benchmarks be used as a universal tool for appraising institutional quality, particularly so if lots of measurement error can affect the relative position of the institution in relation to its peer group?

Recommendations

Know “thy students”

- Examine the extent to which NSSE 1.0’s 5 Benchmarks are reliable and valid for your own students

Examine your students’ own path to and success in college

- Success in college is the result of a longitudinal process that begins at 8th grade if not earlier (Adelman, 2006; Bowen et al., 2005; Cabrera & LaNasa, 2001)
- Among Latina(o) students, preparation for college and having parents holding high expectations were found to predict degree completion (e.g. Arbona & Nora, 2007; Swail, Cabrera & Lee, 2005)
- Among students attending urban institutions, some of the best predictors of persistence are commitment to the institution, preparation for college and parental encouragement and support (e.g., Cabrera, Nora & Castaneda, 1992),

Identify your critical outcomes & study their determinants

- Transfer. Best predictors include curricular planning, clear academic goals and intensity of curricular choices in math and sciences (Adelman, 1996; Cabrera et al., 2005; Hagedorn, Cabrera & Prather, 2010-11; Calcagno et al., 2007).

Examine determinants of success across majors and classrooms
Success in college is the result of a longitudinal process

College Decision → College Experiences → College Outcomes

- Family Encouragement & Involvement
- Preparation for College
- K-16 Communication & Engagement
- Aspirations & Plans
- Awareness of College Characteristics, Admission Standards, & Costs
- Academic Integration
- Social Integration
- Facilities & Services
- Climate & Diversity
- Competencies
- Persistence Transfer Stop-out
- Degree Completion
- Satisfaction & Commitment
- Financial Aid Mix
- Graduate School
- Employment & Income
- Job Performance
- Civic Engagement
- Alumni Giving

Address Key Competencies

Sheryl Sorby

- Engineering graphics courses are gatekeeper for women
- Discovered that three dimensional spatial skills (3-D) was a predictor of success in a variety in graphic courses
- Designed two elective courses to improve spatial visualization skills
- Women performance and retention increased when electives addressed the following skills:
  - Isometric sketching, orthographic projection, flat pattern development, 2-D and 3-D visualization, object translation, scaling, uni-axial and bi-axial rotation & reflection, solid
Develop learning communities

Uri Treisman

Intrigued by substantial performance differences in college calculus between African Americans & Asian Americans, discovered informal networks.

African Americans studied hard, attended class, and did their homework. Asian Americans worked in groups.

Developed models to implement academic networks.

Emerging Scholars Programs have been adopted by major schools of engineering.

http://www.utexas.edu/news/2006/02/09/mathematics/

References

References


Olivas, M. O. (2011). If you build it, they will assess it (or, an open letter to George Kuh, with love and respect). Review of Higher Education, 31(1), 1-16.