Providing Comparative Data on Published Research Impact (Internally and Externally)

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Marston Science Library ~ University of Florida

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Beyond Books

• “How do we measure up??”
• Ask Your Librarian!
  – Department-specific publication data analysis
• Chemical Engineering Department Comparison
• CTSI Annual Report Evaluation
• Take-Home Message: No magic tools so be prepared to work and here’s some hints!
Chemical Engineering Department Comparison Project

Chair requested for UF and 5 pre-selected institutions:

# peer-reviewed journal articles published in the last 5 years
# citations to articles that were published in last 5 years
Avg. journal impact factor of all papers in last 5 years
# Fellows of professional associations such as AICHE, APS, or ACS and the number of NAE/NAS Memberships
# patents granted in last 5 years
... for a presentation in 5 days...

... while I am at ACS in Boston...

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Chemical Engineering Department Comparison Project

Worked with team back at UF to pull everything together!

- Author names - department websites, noted splits & merges
  - For articles as well as professional society memberships where they weren’t sorted by institution
- Web of Science > SciFinder for articles - better control of searching by department name, citation counts and the $h$-index, and assumption that all relevant peer-reviewed journals would be included
- Searched Web of Science by address field, refining as needed for accuracy, such as <$\text{univ florida}$ SAME $\text{dept chem engn}$>
- Calculated avg # number of articles per faculty member & avg # of citations per article at each university
- “Analyzed results” ranked by source title, and set minimum record count to 2 to eliminate long tail of articles published in peripheral journals
- Produced bibliographies of the most heavily-cited articles at each institution
### Chemical Engineering Department Comparison Project

<table>
<thead>
<tr>
<th>Journal (impact factor)</th>
<th>U1 # articles (multiplier)</th>
<th>U2 # articles (multiplier)</th>
<th>U3 # articles (multiplier)</th>
<th>U4 # articles (multiplier)</th>
<th>U5 # articles (multiplier)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angew Chemie Int’l ed. (11.829)</td>
<td>2 (23.66)</td>
<td>12 (141.95)</td>
<td>5 (59.14)</td>
<td>7 (82.8)</td>
<td>3 (35.487)</td>
</tr>
<tr>
<td>Nano Letters</td>
<td>0 (0)</td>
<td>9 (89.92)</td>
<td>12 (119.89)</td>
<td>6 (59.95)</td>
<td>14 (139.87)</td>
</tr>
<tr>
<td>PNAS (9.432)</td>
<td>1 (9.43)</td>
<td>12 (113.18)</td>
<td>6 (56.59)</td>
<td>5 (47.16)</td>
<td>1 (9.43)</td>
</tr>
<tr>
<td>JACS (8.580)</td>
<td>11 (94.38)</td>
<td>25 (214.5)</td>
<td>21 (180.18)</td>
<td>12 (102.96)</td>
<td>10 (85.80)</td>
</tr>
<tr>
<td><strong>total (160 titles)</strong></td>
<td><strong>430 (1386.34)</strong></td>
<td><strong>518 (2529.54)</strong></td>
<td><strong>612 (2774.20)</strong></td>
<td><strong>391 (1833.82)</strong></td>
<td><strong>336 (1280.55)</strong></td>
</tr>
</tbody>
</table>

Columns for each university indicate # of articles published in that journal in the last five years, multiplied by the impact factor. Bottom row = overall impact of articles published in the chosen set of journals (that included at least 2 published articles per university).
Chemical Engineering Department Comparison Project

• Obtained the number of Fellows from professional associations’ websites—some do not index the institution and must be examined by name
• Searched SciFinder for patent data

Challenges:
- Accounting for change
- Patents not awarded to individuals - usually to boards, sponsored research divisions, or university system (or external companies)
- NRC comparison: close but vary, may require explanation

Clinical and Translational Science Institute

Improve human health through the translation of science into practice

Requested data for annual report, provided member names, and requested:

- Publication counts for 555 faculty and staff within CTSI for 2008-2011, across several departments
- Group by university ID number
- Group by grant activity, research involving human subjects, animal subjects, and a grant total
CTSI Annual Report

Search by individual author names in Web of Science, adjusting for name variations

Create a Refworks database and import publications into master list

Add the numbers into the spreadsheet which could be sorted by article count

De-duplicate co-authored works
A subsequent project requested articles for 800+ people for 2011, with a quicker deadline. We negotiated:

Extending search to 2010-2011 due to the length of time involved in the publication process

Limiting to most prolific authors who had published 20 or more articles in the previous project (130 authors)

Re-searching those 130 prolific authors to identify the number of articles published in 2010 and 2011, and the number of citations in 2010-11 to those articles
Commonalities & Challenges

“What are they asking?” -> “What do they really want?”

• Awareness of commonly reported measures
• Tools available – no Magic Bullet
  – Requires an initial data load
  – Not precise enough
• Time constraints
• Experience with previous projects
“Tips and Tricks”

Address Searching Limitations:
WoS: incomplete addresses for meeting abstracts, corrections, and letters—this is not a big loss if only measuring journal articles
PubMed only lists address for first (or corresponding) author
SciFinder requires name searching then analyzing by company/organization, and then selecting from every possible address variation (dept name, bldg. or street, etc.)

Author Searching Tips in Web of Science:
Distinct Author Sets function doesn’t work well when there are too many person-matches on the name
   Refining by subjects is helpful, provided any cross-disciplinary topics are not excluded.
Beware authors whose last name is also a first name.
   Example: searching for <gregory j*> retrieves articles written by <ragland gregory j*> and <tranah gregory j*>
“Tips and Tricks”

If you have both a Judith A. Johnson and a Julie A. Johnson in the same discipline at your institution, prepare to hand-separate their publications.

No matter how unique an author’s last name seems, keep in mind that a relative with the same first initial may also work at the same institution (especially in a “college town”).

If the article topics seem unnaturally distant, double-check the author names in the institution’s directory—there may indeed have two distinct David A. Weinsteins, both in medical fields, at an institution!

Be cautious with restricting to the middle initial because many records exclude the middle initial, especially when the searched name is not the first author.

**Recommended Actions:** Keep checking on new analytical packages & encourage creation and maintenance of ResearcherIDs
Conclusions

Assessments are valuable to the departments.
Objective measures of productivity and impact relative to one’s peers
Individual authors’ article output vs. citation counts

Existing researcher discovery tools are expensive and often still require manual work.
Changes mid-stream can affect the data and time involved.

Precise data-gathering, such as limiting by department, requires careful author name searching, and author name disambiguation and control in author affiliation fields still needs to be developed.

Web of Science has stronger analytical tools, even when SciFinder or PubMed are better for subject and non-article coverage.

Sharing chores has the potential to introduce variations in the data-gathering process.
Acknowledgements

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