Impact in scholarly communications

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Impact

Scholarly communication cycle involves “evaluating research and other scholarly writings for quality” (ARL, 2013)
Measuring impact has *real* impact on scholar’s careers and livelihoods
Studying impact in scholarly communications
Multiple data streams offer a robust picture
Impact is a hot topic

LITA search: SU:impact OR SU:assessment AND libraries

Peer reviewed publications on impact and assessment
Research impact of paywalled versus open access papers

<table>
<thead>
<tr>
<th>Field</th>
<th>Paper (n)</th>
<th>Reference (n)</th>
<th>not OA (arc)</th>
<th>OA (arc)</th>
<th>gold (arc)</th>
<th>green (arc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>3,350,910</td>
<td>34,865,430</td>
<td>0.81</td>
<td>1.23</td>
<td>1.06</td>
<td>1.28</td>
</tr>
<tr>
<td>Agriculture, Fisheries &amp; Forestry</td>
<td>138,025</td>
<td>804,380</td>
<td>0.85</td>
<td>1.18</td>
<td>0.73</td>
<td>1.35</td>
</tr>
<tr>
<td>Biology</td>
<td>151,424</td>
<td>1,882,514</td>
<td>0.74</td>
<td>1.17</td>
<td>1.33</td>
<td>1.18</td>
</tr>
<tr>
<td>Biomedical Research</td>
<td>291,325</td>
<td>5,581,332</td>
<td>0.80</td>
<td>1.14</td>
<td>1.16</td>
<td>1.09</td>
</tr>
<tr>
<td>Built Environment &amp; Design</td>
<td>16,648</td>
<td>84,825</td>
<td>0.83</td>
<td>1.28</td>
<td>0.79</td>
<td>1.35</td>
</tr>
<tr>
<td>Chemistry</td>
<td>317,930</td>
<td>2,432,155</td>
<td>0.90</td>
<td>1.24</td>
<td>0.65</td>
<td>1.34</td>
</tr>
<tr>
<td>Clinical Medicine</td>
<td>823,924</td>
<td>9,323,440</td>
<td>0.81</td>
<td>1.28</td>
<td>1.25</td>
<td>1.28</td>
</tr>
<tr>
<td>Communication &amp; Textual Studies</td>
<td>28,178</td>
<td>37,152</td>
<td>0.78</td>
<td>1.93</td>
<td>0.81</td>
<td>2.16</td>
</tr>
<tr>
<td>Earth &amp; Environmental Sciences</td>
<td>117,429</td>
<td>1,332,707</td>
<td>0.82</td>
<td>1.16</td>
<td>0.82</td>
<td>1.20</td>
</tr>
<tr>
<td>Economics &amp; Business</td>
<td>66,037</td>
<td>607,155</td>
<td>0.65</td>
<td>1.25</td>
<td>0.67</td>
<td>1.27</td>
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<tr>
<td>Enabling &amp; Strategic Technologies</td>
<td>250,651</td>
<td>2,404,079</td>
<td>0.89</td>
<td>1.18</td>
<td>0.79</td>
<td>1.30</td>
</tr>
<tr>
<td>Engineering</td>
<td>193,856</td>
<td>1,029,715</td>
<td>0.85</td>
<td>1.25</td>
<td>0.86</td>
<td>1.36</td>
</tr>
<tr>
<td>General Arts, Humanities &amp; Social Sciences</td>
<td>3,932</td>
<td>11,757</td>
<td>0.65</td>
<td>1.69</td>
<td>0.99</td>
<td>1.65</td>
</tr>
<tr>
<td>General Science &amp; Technology</td>
<td>31,793</td>
<td>1,906,904</td>
<td>0.93</td>
<td>1.10</td>
<td>0.84</td>
<td>1.20</td>
</tr>
<tr>
<td>Historical Studies</td>
<td>25,468</td>
<td>50,016</td>
<td>0.80</td>
<td>1.58</td>
<td>0.68</td>
<td>1.91</td>
</tr>
<tr>
<td>Information &amp; Communication Technologies</td>
<td>97,786</td>
<td>582,010</td>
<td>0.72</td>
<td>1.23</td>
<td>0.98</td>
<td>1.27</td>
</tr>
<tr>
<td>Mathematics &amp; Statistics</td>
<td>107,426</td>
<td>558,567</td>
<td>0.78</td>
<td>1.14</td>
<td>1.12</td>
<td>1.22</td>
</tr>
<tr>
<td>Philosophy &amp; Theology</td>
<td>17,117</td>
<td>28,107</td>
<td>0.70</td>
<td>1.74</td>
<td>0.76</td>
<td>1.98</td>
</tr>
<tr>
<td>Physics &amp; Astronomy</td>
<td>424,091</td>
<td>3,954,894</td>
<td>0.75</td>
<td>1.27</td>
<td>0.92</td>
<td>1.34</td>
</tr>
<tr>
<td>Psychology &amp; Cognitive Sciences</td>
<td>70,022</td>
<td>1,026,674</td>
<td>0.69</td>
<td>1.23</td>
<td>1.15</td>
<td>1.19</td>
</tr>
<tr>
<td>Public Health &amp; Health Services</td>
<td>85,703</td>
<td>804,085</td>
<td>0.83</td>
<td>1.17</td>
<td>1.00</td>
<td>1.23</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>86,513</td>
<td>421,516</td>
<td>0.69</td>
<td>1.49</td>
<td>0.89</td>
<td>1.63</td>
</tr>
<tr>
<td>Visual &amp; Performing Arts</td>
<td>5,632</td>
<td>1,440</td>
<td>0.83</td>
<td>2.19</td>
<td>1.17</td>
<td>2.69</td>
</tr>
</tbody>
</table>

Individual author comparison download rate
OA and paywall

Comparison of my peer-reviewed journal publications in 2013 & 2014

Citation Rate (monthly)

- Open Access
  - Milk Transcriptome: Mean=0.83
  - Who Was Helping
  - Cow Milk
  - SAFE study
  - Monkey Milk Cortisol

- Paywall*
  - Milk Methods
  - Metabolome
  - Daughter Dearest
  - MonkeyTeeth

  Mean=0.52

Altmetric Score

*excluding journals w/ IF >30 (N=1)

Katie Hinde
What questions can impact address?

**Author impact**

How is this author’s work received?

**Journal impact**

How does this journal rank among others in its field?

**Article Level Metrics**

How do people engage with an individual article immediately, and over time?

**Institutional research outputs**

What is the value of research at-large and of individuals at this institution?
## Author impact

<table>
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<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H-index</strong></td>
<td>Measures the impact of a particular scientist</td>
</tr>
<tr>
<td><strong>G-index</strong></td>
<td>Measures the impact of a particular scientist, but adds more weight to highly cited articles</td>
</tr>
<tr>
<td><strong>I10-index</strong></td>
<td>The number of publications with at least 10 citations</td>
</tr>
</tbody>
</table>
## Journal impact measures

<table>
<thead>
<tr>
<th><strong>Impact Factor (IF)</strong></th>
<th>Measures the frequency with which the average article in a journal has been cited in a particular year. It ranks a journal by calculating the times it's articles are cited. The higher the rank, the more impactful the journal.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Journal Citation Reports (JCR, Web of Science)</strong></td>
<td>Ranks journals in science, technology, and social sciences—best as a comparison tool between journals. Measures include citation and article counts, impact factor, immediacy index, cited half-life, citing half-life, source data listing, citing journal listing, cited journal listing, subject categories, and publisher information. (Whew!)</td>
</tr>
<tr>
<td><strong>Eigenfactor</strong></td>
<td>Rates the “total” importance of a journal over time.</td>
</tr>
<tr>
<td><strong>SCImago &amp; Country Reports (Scopus)</strong></td>
<td>Ranks journals, disciplines, and output of materials by country.</td>
</tr>
<tr>
<td><strong>Google scholar metrics</strong></td>
<td>A list of the top 100-journals ranked according to five-year h-factors (index and mean), and shows highest cited articles (h5) in each publication</td>
</tr>
</tbody>
</table>
Article level metrics (ALMs)

Article-Level Metrics (ALMs) are a relatively new approach to quantifying the reach and impact of published research. They are a toolkit of heterogeneous data points that can be mixed and matched as circumstances warrant.

ALMs pull from two distinct data streams: scholarly visibility and social visibility.

Altmetrics and ALMS are not interchangeable.
### What’s a method?

<table>
<thead>
<tr>
<th>altmetrics</th>
<th>Uses the social web (Twitter, Facebook, Mendeley) for analyzing impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>ImpactStory</td>
<td>An open source tool. Enter a DOI to generate an “impact report” on the article</td>
</tr>
<tr>
<td>Altmetric</td>
<td>Subscription services that altmetrics tools such as Explorer</td>
</tr>
<tr>
<td>Snowmall Metrics</td>
<td>Metrics aiming to be global standards that enable institutional benchmarking, and to cover the entire spectrum of research activities</td>
</tr>
<tr>
<td>CitedIn</td>
<td>Produces an impact report for PubMed articles. Requires installing API</td>
</tr>
<tr>
<td>Plum Analytics</td>
<td>Product offering comprehensive analytics of research outputs</td>
</tr>
<tr>
<td>Publisher ALMs</td>
<td>BioMed Central, Public Library of Science (PLOS), Frontiers, Nature Publishing Group and Elsevier, and others offer ALMs</td>
</tr>
</tbody>
</table>
Products offering article level metrics (and more)
Discussion

What products does your institution subscribe to? (If you don’t know, who you would contact to find out?)

Who pays for the products?
Scholar visibility
Establishing & managing a personal brand

Personal websites/blogs

Social Media: Twitter, Facebook, Instagram

Research communities: researchgate, academia.edu, mendeley

Identity disambiguation: ORCID and Researcher ID

Google Scholar profile

Scalar, Storify
Group work

1. Brainstorm a comprehensive bibliometrics service for faculty and graduate students. Consider such things as:
   • What expertise will you need to offer these services?
   • What is the level of service you will offer?
   • What resources will you need to acquire?
   • Who are your on campus partners?
Putting it all together: tracking impact at the researcher level

**Publication influence**
- Journal impact factor
- Author impact factor
- Article level metrics

**Scholar visibility**
- Personal website with CV (may be institutional)
- ORCID ID
- Research Gate/ Academia.edu account

**Social visibility**
- Twitter account
- Facebook profile
- Article level metrics (times tweeted, posted/comment on Facebook, appears on blogs, etc.)
Potential Library Services

• Training on citation tracking systems/tools
• Education for article level metrics
• Education on research dissemination platforms
• Be involved research offices or grants
Institutional productivity
Institution systems to measure productivity

**VIVO:** Open source semantic web platform designed to aggregate research outputs at the institutional level. Used by more than 20 institutions worldwide, including Cornell University, where it was developed.

**Symplectic elements:** Collect, understand and showcase the outputs of academic research. Integrates with OA repositories, and more. Advertises itself as a single point of truth.

**Pure:** Research outputs, research datasets, grants, organizational structures, and courses taught.
Group discussion

• Working in teams, craft an argument for OR against your Library’s involvement in institutional productivity systems.
Impact: Whose job is it?

Current OSC team structure early 2016
Pros and Cons of Impact

Pros:

Shortcut to determine a sense of scholarly activity and reception, exploring different audiences

Use numbers to tell a story of the reach of your work

“A citation is listed in the Nth percentile of Biology research published in 2015 on Impactstory.”

“Paper covered by more than 100 media outlets worldwide, including The Wall Street Journal and The New York Times.”

Cons:

No one likes to be reduced to a “number” (even when it is a very good number)

Newer and open access journals are typically ranked lower than established, traditional journals.

Many impact measurements disadvantage younger/newer scholars.

Not all impact metrics are created equal!

All impact metrics can be “gamed”
Questions?

Thank you!