Making sense and making use of Altmetrics in research evaluation
Citation metrics lag behind
Academics aren’t the only audience
Articles aren’t the only academic outputs
Distortion of the research landscape

“Evidence for excellence: has the signal overtaken the substance?”, Jonathan Adams & Karen Gurney, Digital Science, June 2014
Research evaluation is changing

Grant funders looking for proof of “broader impacts” often defined as “an effect, change, or benefit to the economy, society, culture, public policies, health, the environment, etc.”

http://www.ref.ac.uk/panels/assessmentcriteriaandleveldefinitions/

Broaden dissemination to enhance scientific and technological understanding, for example, by presenting results of research and education projects in formats useful to students, scientists and engineers, members of Congress, teachers, and the general public.


The assessment committee bases its judgement on three assessment criteria: research quality, relevance to society, and “viability”.

The conversation is moving online

35K online mentions of scholarly articles every day.

1 mention every 2.5 seconds!

137K unique articles are shared each week.

>2M articles with tracked attention data.

Source: Altmetric internal data, June 2014
Sources of Attention

News outlets
- Over 1,300 sites
- Manually curated list
- Text mining
- Global coverage

Social media and blogs
- Twitter, Facebook, Google+, Sina Weibo
- Public posts only
- Over 8,000 blogs

Post-publication peer review
- Publons
- PubPeer

Reference managers
- Mendeley, CiteULike
- Reader counts
- *Don’t count towards the Altmetric score*

Other sources
- YouTube
- Reddit
- F1000
- Pinterest
- Q&A

Policy documents
- NICE Evidence
- Intergovernmental Panel on Climate Change
- 15 others and counting
What does Altmetric do?

• We follow a manually curated list of sources – where academic research is regularly mentioned.

• We pick up mentions that contain links to papers.

• We text mine news sources and blogs to determine which article they refer to.

• We collate the attention paid to different versions of the same paper.

• We show you the actual mention, so you can assess the context.
The donut visualization

Volume
The score for an article rises as more people mention it.

Sources
Each category of mention contributes a different base amount to the final score.

Authors
How often the author of each mention talks about scholarly articles influences the contribution of the mention.

- Policy documents
- News
- Blogs
- Twitter
- Post-publication peer-reviews
- Facebook
- Sina Weibo
- Google+
- LinkedIn
- Reddit
- Faculty1000
- Q&A (stack overflow)
- Youtube
- Pinterest
The Altmetric score does not tell you...

- Quality of the paper
- Quality of the researchers
- Whole story
Metrics that we avoid

We don’t show...

- Facebook likes
- Twitter favourites
- Usage data

Because...

- They can be bought or gamed
- Offering usage data from just a few sources does not allow meaningful analysis or comparisons
What can the data tell you?

- What type of attention is this research receiving?
- Where has this article received the most traction?
- Which countries are engaging most with the content?
- Has this article influenced policy, spurred new research, or engaged a new audience?
- Are reactions to this article positive or negative?
Navigating the Details Pages

1. Estimate the amount of attention from the score
2. Browse each type of source, or interpret the significance of the score, or see the demographics of mentions
3. Click through to the actual mention for context
Fast food hamburgers: what are we really eating?

The Altmetric score is one measure of the quality and quantity of online attention that this article has received. You can read about how Altmetric scores are calculated here.

This article scored 127.40.

The context below was calculated when this article was last mentioned on 5th July 2013.

Compared to all articles in Annals of Diagnostic Pathology

So far Altmetric has tracked 54 articles from this journal. They typically receive a little less attention than average, with a mean score of 2.0 vs the global average of 3.6. This article has done particularly well, scoring higher than 99% of its peers. It's actually the highest scoring article in this journal that we've seen so far.

All articles of a similar age

Older articles will score higher simply because they've had more time to accumulate mentions. To account for age we can compare this score to the 19,608 tracked articles that were published within six weeks on either side of this one in any journal. This article has done particularly well, scoring higher than 99% of its contemporaries.

Other articles of a similar age in Annals of Diagnostic Pathology

We're also able to compare this article to 2 articles from the same journal and published within six weeks on either side of this one. This article has scored higher than all of them.

All articles

More generally, Altmetric has tracked 1,349,492 articles across all journals so far. Compared to these this article has done particularly well and is in the 99th percentile: it's in the top 5% of all articles ever tracked by Altmetric.
A mitochondrial genome sequence of a hominin from Sima de los Huesos.

Twitter attention
The data shown below were collected from the profiles of tweeters who shared this article. Click here to find out more about how the information was compiled.

Geographical breakdown

Mendeley readership
The data shown below were compiled from readership statistics for 221 Mendeley readers of this article. Click here to access the article's page on the Mendeley website.

Geographical breakdown

Tweeter demographics
Type
Members of the public
Scientists

<table>
<thead>
<tr>
<th>#</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>US</td>
</tr>
<tr>
<td>2</td>
<td>GB</td>
</tr>
<tr>
<td>3</td>
<td>DE</td>
</tr>
<tr>
<td>3</td>
<td>BR</td>
</tr>
<tr>
<td>3</td>
<td>FR</td>
</tr>
<tr>
<td>3</td>
<td>ES</td>
</tr>
<tr>
<td>3</td>
<td>IT</td>
</tr>
<tr>
<td>8</td>
<td>DK</td>
</tr>
<tr>
<td>8</td>
<td>CA</td>
</tr>
</tbody>
</table>
Not just journal articles

We track all CrossRef and DataCite DOIs, PubMed IDs, arXiv IDs, RePEc IDs, and we can track handles too.

- e.g. article details page for figshare DOI 10.6084/m9.figshare.1130885
BUT DOES ANY OF THIS MATTER?
OR IS IT JUST NOISE?


Reports a medium/strong correlation between Mendeley readership and citations, a weak one between blog posts and citations, and little or no correlation between Twitter mentions and citations.
The evidence – 2


Using an analysis of 1.4 million documents covered by both PubMed and Web of Science and published between 2010 and 2012, shows that “correlations between tweets and citations are low, implying that impact metrics based on tweets are different from those based on citations”

http://www.academia.edu/6298635/Who_Reads_Research_Articles_An_Altmetrics_Analysis_of_Mendeley_User_Categories

Suggests that “Mendeley readership can reflect usage similar to traditional citation impact, if the data is restricted to readers who are also authors, without the delay of impact measured by citation counts” and that “Mendeley statistics can also reveal the hidden impact of some research papers, such as educational value for non-author users inside academia or the impact of research papers on practice for readers outside academia.”
The evidence – 4


Finds evidence of correlations between articles reviewed in blogs, and future citations.

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0064841

Provides evidence that altmetrics can provide intelligence on the readership of academic research that traditional citation metrics can’t: “It seems that altmetrics probably capture a broad, or at least a different, aspect of research visibility and impact in comparison to citation counts. For example, non-publishing so called “pure” readers are estimated to constitute one third of the scientific community and these may tweet or blog articles without ever citing them.”
The evidence – 6


http://link.springer.com/article/10.1007%2Fs11192-014-1264-0

In a study of metrics for 20,000 random publications from the Web of Science found that 62.6% of the articles had Mendeley readership metrics, and found a moderate Spearman correlation \((r = 0.49)\) between Mendeley readership counts and citation indicators.
Conclusions from evidence – 1

- Academic readings in Mendeley are an indicator that the article has influenced thought and may be cited by that author in the future.

- A recent article with lots of Mendeley readership might be a better bet for REF than a recent article with little Mendeley readership.
Conclusions from evidence – 2

• Articles reviewed (favourably) in blogs and other online sites are likely to be well-cited in the future.

A recent article with positive online reviews might be a better bet for REF than a recent article with no positive online reviews.
Conclusions from evidence – 3

• Social media attention on sites like Twitter, Facebook, Google+ might indicate impact amongst practitioners, policy makers, and the general public.

➢ You need to check the mentions for significance of author, and reach. Maybe contact them to find out more.

➢ Authors need to manage their social media network to help reach the right audience.

➢ Authors need to actively promote their own research.
How can Altmetric for Institutions help?

**Researchers**
- Monitor immediate uptake of articles
- Provide evidence of impact for CVs and funders
- Help choose which articles to submit to REF
- Make informed decisions on future publishing choices

**Research admin officers**
- Monitor and report on activity by department
- Assist in grant applications
- Comply with funder and governmental mandates
- Evaluate need for additional support

**Comms team**
- Measure success of (social) media engagement
- Find success stories to share (e.g. through press releases, media interviews, Alumni magazine)
- Find researchers who are engaged with social media

**Librarians**
- Help researchers track the impact of their articles
- Provide evidence for CVs and grant applications
- Provide a current awareness service
- Help lecturers populate suggested reading lists
Monitor uptake of a new article

Female monopolization mediates the relationship between pre- and postcopulatory sexual traits

So far Altmetric has seen 2 tweets from 2 accounts.

David R. Bachinsky
@drbachinsky
3,262 followers

@razibkhan @evolbrain Female monopolization mediates the relationship between pre- and postcopulatory sexual traits http://t.co/EA3z3QBg8O

PROX
@kumppppp
514 followers

Female monopolization mediates the relationship between pre- and postcopulatory sexual traits http://t.co/uzddQmllimN

13-Mar-2014

Get email updates when this article is shared
Daily or weekly alert of new mentions of any of your articles
Track critiques of your articles that might require a response
Find articles with the highest Mendeley readership

1. A Population of Fast Radio Bursts at Cosmological Distances
   
   Science
   
   Abstract [...]
   
   Keith, Michael

2. A State Change in the Missing Link Binary Pulsar System PSR J1023+0038
   
   The Astrophysical Journal
   
   Stappers, Benjamin
   
   Astronomical And Space Sciences, Organic Chemistry, Physical Chemistry (Incl. Structural)

3. Transformation of a Star into a Planet in a Millisecond Pulsar Binary
   
   Science
   
   Abstract [...]
   
   Stappers, Benjamin, Keith, Michael

4. A Massive Pulsar in a Compact Relativistic Binary
   
   Science
   
   Abstract [...]
   
   Kramer, Michael

5. Global collapse of molecular clouds as a formation mechanism for the most massive stars
   
   Astronomy & Astrophysics
   
   Fuller, Gary
Track the online conversations in your field of study

All mentioned articles with keywords *happiness*
Find social media accounts to follow
Find social media accounts to follow
Track the research that others in your field mention

<table>
<thead>
<tr>
<th>Articles</th>
<th>Activity</th>
<th>Journals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online collaboration: Scientists and the social network. <em>Nature</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variation in Melanism and Female Preference in Proximate but Ecologically Distinct Environments <em>Ethology</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoology</td>
<td>Psychology</td>
<td>Evolutionary Biology</td>
</tr>
<tr>
<td>Publishers withdraw more than 120 gibberish papers <em>Nature</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The hipster effect: When anticonformists all look the same</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methane leaks erode green credentials of natural gas. <em>Nature</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funders punish open-access dodgers <em>Nature</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Benchmark yourself

Edit group article list

Enter a list of up to 10,000 DOIs, arXiv IDs, RePEc identifiers, handles or PubMed IDs corresponding to the articles you are interested in below. Each one should be on a separate line.

10.1002/9781118227978.ch11
10.1002/9781119974260
10.1002/9781119974260.ch3
10.1002/9781119974260.ch4
10.1002/9781444392494.ch10
10.1002/9781444396775
10.1002/9781444396775.ch
10.1002/9781444396775.ch1
10.1002/9781444396775.ch8
10.1002/9781444396805.ch2
10.1002/9781444397161.ch1
10.1002/9781444397161.ch2
Benchmark yourself against others
Keep a record of evidence of engagement and impact
Thanks for listening!

Twitter: @altmetric
Website: altmetric.com
E-mail: info@altmetric.com
t.bucknell@digital-science.com