Altmetrics – Alternative metrics??

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Altmetrics – definitions

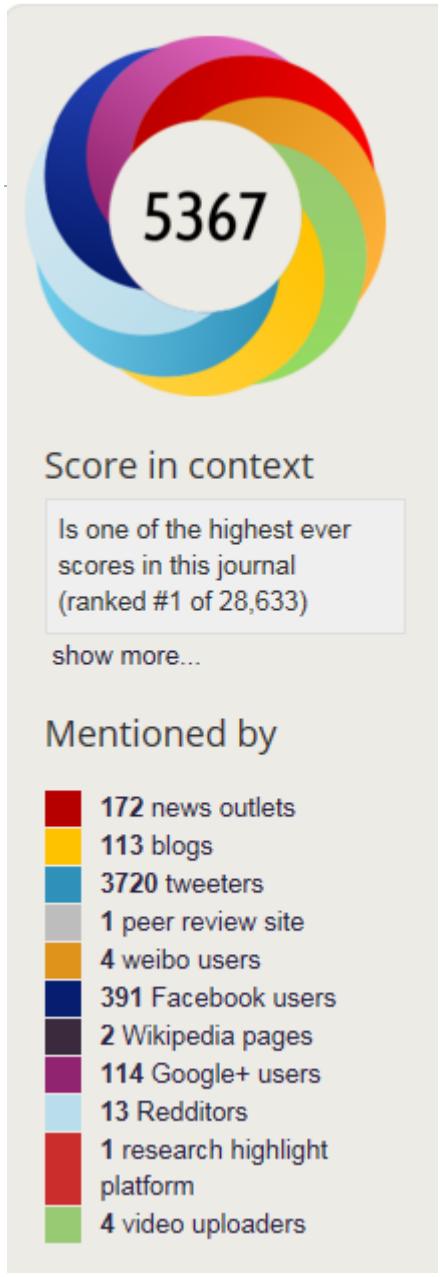
- "In scholarly and scientific publishing, altmetrics are non-traditional metrics proposed as an **alternative** to more traditional citation impact metrics, such as impact factor and h-index."
  - Wikipedia
- "Altmetrics … new, online scholarly tools. … [that] reflect the broad, rapid impact of scholarship. … [They form] a **composite trace of impact** far richer than any available before. We call the elements of this trace altmetrics."
  - Altmetrics: A manifesto
- "A new form of measuring research impact by **adding on** a wider set of metrics to traditional bibliographic rankings based on academic journal citation analysis"
  - Collins dictionary

Major (current) sources of altmetrics

- "Altmetric collects **article level metrics** and the online conversations around research … combining a selection of online indicators (both scholarly and non-scholarly) to give **a measurement of digital impact and reach**."
  - altmetric.com

Experimental evidence of massive-scale emotional contagion through social networks

Kramer AD, Guillory JE, Hancock JT
PNAS, June 2014



Altmetric.com – new source: Wikipedia

- Wikipedians have mixed feelings about this:
  - "While that's **great recognition** for Wikipedia as a corpus of scholarly work, does that mean **Wikipedia will be overrun with academic authors** adding citations to their academic papers in any Wikipedia article they can get away with **in order to improve their citation counts for their CVs**? … On the positive side, we might be able to **get rid of a lot of citation-needed tags**."

    Kerry Raymond on the Wiki-research-l mailing list
  - "I think that it's much better to have too much academic interest than not enough… Academics have to be very careful about their reputation, and it's hard to cite your own unnecessarily without giving up who you are"

    Aaron Halfaker on the Wiki-research-l mailing list

Major (current) sources of altmetrics

- Reference managers
  - Mendeley, CiteULike
- Post-publication peer review
  - F1000 Prime, PubPeer
- Research blogs
  - Aggregators (researchblogging.org) and blog networks (ScienceBlogs),
- Academic social media sites
  - ResearchGate, academia.edu
- Google Scholar Citation Profile (?)

Do we care about our profiles?

- ResearchGate
  - 15 out of 21
- Academia.edu
  - 10 out of 21
- Google Scholar Citation Profile
  - 14 out of 21

- All three: 6
- Two: 8
- One: 5
- None: 2

ResearchGate

academia.edu

Google Scholar

Alan Turing

Reader, University of Manchester

Mathematics, Computer Science, Cryptography, Artificial Intelligence, Morphogenesis

No verified email - Homepage

Citation indices	All	Since 2010
Citations	42987	9784
h-index	82	23
i10-index	100	34

Reference managers

- Olesya: "While peer review and citations reflect opinion about a paper's quality and scientific impact after reading, downloads rather reflect interest before reading."
- Saving an item to a reference manager = (?) intention to read (at least skim) it
- Are the items actually read?
- Are items not found interesting discarded?
- Mendeley: a user saving an item is a "reader"
- If we agree that saving = intention to read AND the service has a large number of users THEN number of readers can serve as a proxy for number of downloads

What are readers interested in?

How To Choose a Good Scientific Problem

Uri Alon in *Molecular Cell (2009)*

> Choosing good problems is essential for being a good scientist. But what is a good problem, and how do you choose one? The subject is not usually discussed explicitly within our profession. Scientists are expected to be smart enough to figure it out...

Save reference to library · **Related** research

76,131 readers

Times Cited: 9
(from Web of Science Core Collection)

Why most published research findings are false: Author's reply to Goodman and Greenland [7]

John P A Ioannidis in *PLoS Medicine (2007)*

> There is increasing concern that most current published research findings are false. The probability that a research claim is true may depend on study power and bias, the number of other studies on the same question, and, importantly, the ratio of...

Save reference to library · **Related** research

30,119 readers

Times Cited: 16
(from Web of Science Core Collection)

Hallmarks of cancer: The next generation

Douglas Hanahan, Robert A. Weinberg in *Cell (2011)*

> The hallmarks of cancer comprise six biological capabilities acquired during the multistep development of human tumors. The hallmarks constitute an organizing principle for rationalizing the complexities of neoplastic disease. They include...

Save reference to library · **Related** research

28,203 readers

Times Cited: 6,253
(from Web of Science Core Collection)

Readership counts vs. citations

- Nature and Science articles
  - Significant correlation of about 0.5
  - Lee, Thelwall & Giustini, 2012
- Scientometricians' publications (N=54)
  - Significant correlation of about 0.45
  - Bar-Ilan et al., 2012; Haustein et al. , 2014
- Large-scale studies
  - Mohammadi & Thelwall, 2014
  - Zahedi et al. , 2013
    - Mendeley's coverage highest among all altmetric sources

JASIST

- 2001-2013: Journal of the American Society for Information Science and Technology
- 2014- : Journal of the Association for Information Science and Technology
- Longitudinal study of readership & citation counts
- 1645 articles published between 2001 and 2011
- Data collected
  - April 2012
  - August 2013
  - May 2014
  - February 2015

Results

	4/2012	8/2013	5/2014	2/2015
Mendeley - read	1600	1549	1607	1604
	97.3%	94.2%	97.7%	97.5%
WOS - cited	1367	1512	1553	1575
	83.1%	91.9%	94.4%	95.7%

Fluctuation in the number of items covered by Mendeley

- No readers left, item is removed (?)
- In August 2013 there were 11 items with 0 readers

	4/2012	8/2013	5/2014	2/2015
Mendeley ave. # readers	9.99	16.14	24.66	26.68
Mendeley max. readers	280	521	855	954
WOS ave. # citations	9.71	12.52	14.03	15.99
WOS max. citations	289	316	326	349

WOS max: Spink et al. (2001). Searching the Web: The public and their queries

readers 2/2015: 141

Mendeley max: Jansen et al. (2009). Twitter Power: Tweets as electronic word of mouth

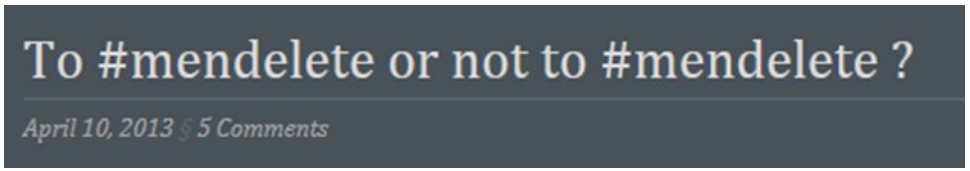
citations 2/2015: 166

Fluctuations in the number of readers

- 444 out of 1645 (27%) – non-monotonic readership counts
  - Leydesdorff (2007) Betweenness centrality as an indicator of the interdisciplinarity of scientific journals
  - Readers
    - April 2012: 44
    - August 2013: 67
    - May 2014: Not found
    - February 2015: 4

Several approaches

- Once a reader always a reader
  - Non-decreasing reader counts
- Only current readers are readers
  - Fluctuations are possible
- A mixture of the above approaches
  - Account deleted – delete all records
  - Deleted items in existing account included in reader counts
- Mendeley was purchased by Elsevier in April 2013
  - #mendelete campaign



http://sylvaindeville.net/2013/04/10/to-mendelete-or-not-to-mendelete/

Need to understand altmetrics better

- Users
  - Why do they set up profiles?
  - How do they use their reference manager?
  - When do they tweet and retweet? …
  - How do they view altmetrics?
  - Are they going to manipulate altmetric sources?

- Systems
  - Transparency
  - Provision of data for research (some do)