

Can altmetrics be used to evaluate research?

Kuldeep Singh Shekhawat and Arunima Chauhan

The emergence of social media has made a huge difference in our lives. The extension of social media to evaluate performance in academics is a new entity. Alternative metrics or altmetrics is a relatively new and emerging sector which utilizes the platform of various outlets of social media to determine the impact of a research work. Blogs, Twitter, Facebook, etc. are now commonly used avenues for research discussion. These avenues can be tapped upon to create a cumulative profile of a research or publisher. However, many believe that altmetrics is just a transient blip on the screen and does not provide complete details. This commentary provides an overview of altmetrics, but with a pinch of salt.

As researchers adopt new ways to share their scholarly contributions at speed, metrics (determine the weightage and impact of a journal/periodical) which describe and provide insights into such work need to keep pace. Different metrics are likely to have different value across output types, research fields and under different circumstances¹. The transition from print to digital world has allowed journals to gain a different perspective; they have become a product composed of items (articles) which acquire their own entity. The breakdown of journals into articles as individual units facilitates traceability through the web, monitoring and individual search².

Most of the metrics available today are calculated according to the citations a periodical receives. The *Journal Impact Factor*, *Journal Citation Report*, *Eigenfactor Score*, etc. have citations as their basic framework. These are collectively called journal-based metrics. The San Francisco Declaration on Research Assessment (DORA) recommends the need to eliminate the use of journal-based metrics suggesting that publishers should offer a range of performance measures to assess and evaluate scholarly output³. This is because, among other reasons, the citations of a journal may not be evenly distributed across its articles. Rather, a small proportion (20%) of articles often accounts for most (80%) of the citations of a journal⁴. Among recommendations for researchers, DORA advises: 'Use a range of *article metrics* and indicators on *personal/supporting statements*, as evidence of the impact of individual published articles and other research outputs'³.

Altmetrics (alternative metrics) is an emerging entity to harness the evidence by aggregating a variety of data sources that taken together quantify the impact of

an article in terms of social immediacy and visibility⁵. Sources used for the aggregation or compilation of data can be broken down into five categories^{6,7}:

- Usage: Views and downloads from the journal website or from a third party, e.g. PubMed Central.
- Captures: Bookmarks in CiteULike bookmarks, shared within Mendeley or Delicious.
- Mentions: Blog posts, Wikipedia articles, comments, reviews.
- Social media: Tweets, Google+, Facebook likes, shares and ratings.
- Citations: Web of Science, Scopus, CrossRef, PubMed Central.

Functioning of altmetrics

The usage of social web services by scholars provides raw data in the form of activities that might be reflected by altmetrics. Researchers use social media for various purposes such as probing, as well as for discovering new research ideas and sharing their own research results or at times those of others. This informal scholarly communication over social media leaves some trails or traces in the virtual world which can be collected and profiled to identify any new knowledge, determine the importance of any particular research work, or harness the collective interest of the scientific community or general population towards a precise topic. Simply put, the ways in which research scholars share, discover and interpret the work of others can be studied to track to impact of any research. For example, readers might store articles to be read in future or comment on an article after reading it. The count of articles read is synonymous to counting citations.

Merits

As mentioned above, articles as a single entity are often reported in social media, downloaded, cited, shared and discussed in blogs. These entirely separate individual events often leave a trail which can be followed, harnessed and be custom-profiled for individual articles, researchers and publishers. This ultimately meets the aim of most researchers; that their work gets noticed in the virtual world (discussed or read) (Figure 1), if not cited, and that it has been found useful – if not necessarily agreed with – and has helped someone else frame their work or their arguments. Therefore, monitoring altmetrics – which is almost instant – can be useful in indicating the extent to which an article is likely to be cited.

Demerits

Altmetrics is a new and changing indicator, but its measurements are not standardized. There is no conclusive evidence to link activity on social media platforms with citations or on the impact of an article. In addition, there are different behaviour patterns between different disciplines (which also happens in traditional metrics), and social media might react differently to some disciplines. Few do not agree with the emerging metrics on the basis that: (a) altmetrics measures only the buzz created by social media (which is of short duration) and it is extremely unlikely that any of it (publication in question) will be cited in any paper indexed by abstracting and indexing services; and (b) there is no formal citation method of this kind⁸.

This emerging metrics needs to be thoroughly researched before it can be claimed and implemented as a valid

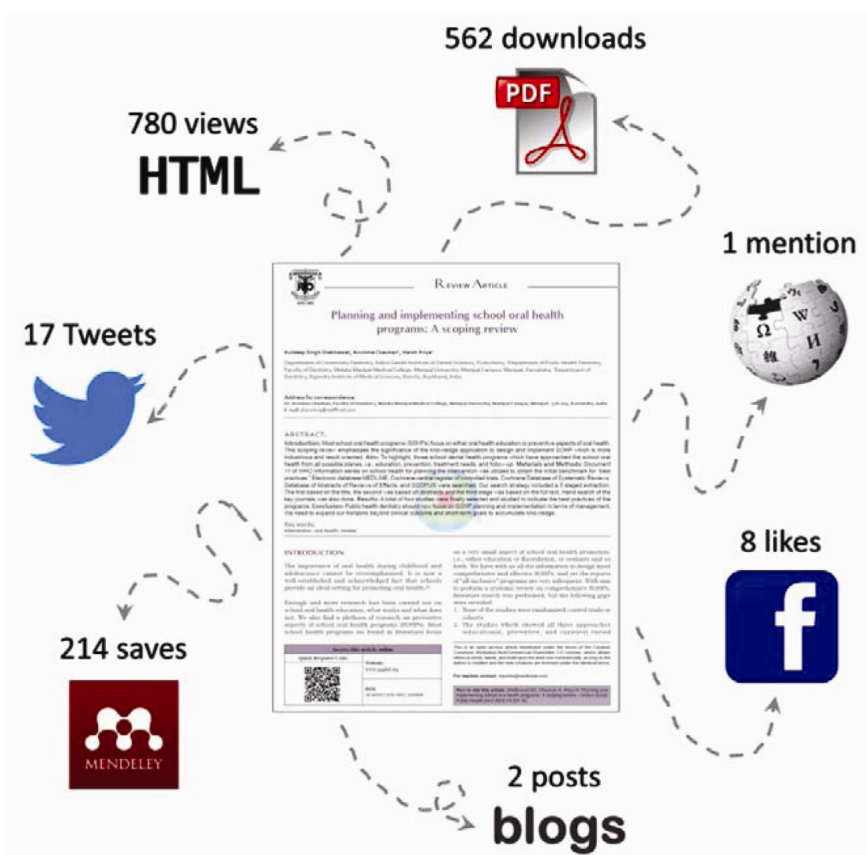


Figure 1. A hypothetical example of visibility through social media, each of which is synonymous to citation.

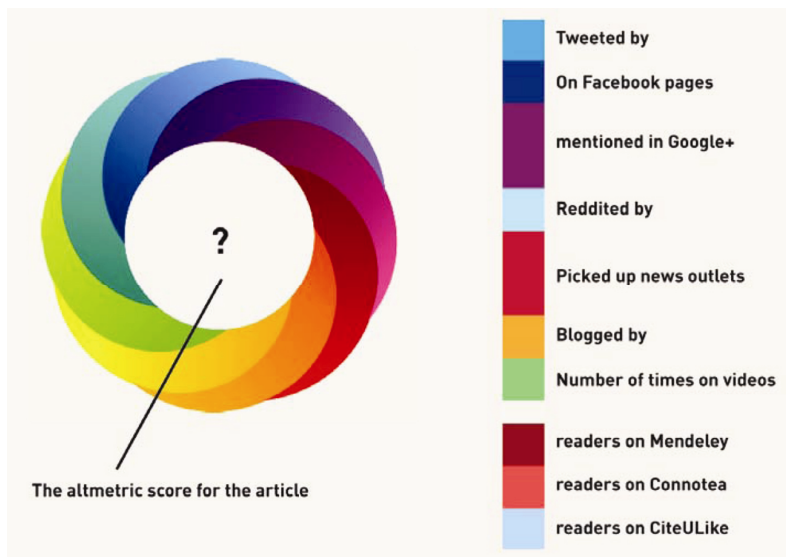


Figure 2. Altmetric score in the shape of a donut.

system. Nevertheless, periodicals like *Journal of the Medical Library Association*, *British Journal of General Practice*,

Nursing Open, *Acta Odontologica Scandinavica*, have already begun to include altmetric score (AM score; sometimes in

the shape of a donut) (Figure 2) in their websites.

The usage of altmetrics among health-care providers is encouraged with a prior warning that altmetric data are not to be used solely for evaluating a research work, but to aid and not supersede bibliometrics. Social media, however, might have a role to play in academia in the future, and should not be ignored. As rightly stated by Elwood⁹, ‘any popular sport have fans who are fond of chanting that their beloved team is the best. Championship games do exist to test the validity of such claims. The journal world has similar characteristics, except there is no playoff system to validate champions’⁹.

1. Lin, J., Murphy, F. L., Taylor, M. and Allen, L., *F1000Research*, 2017, 5, 2897; doi: 10.12688/f1000research.10422.2
2. Melerio, R., *Biochem. Med.*, 2015, 25(2), 152–160.
3. San Francisco Declaration on Research Assessment 2012; <http://www.ascb.org/dora/> (accessed on 11 July 2017).
4. Garfield, E., *JAMA*, 2006, 295(1), 90–93; doi: <http://dx.doi.org/10.1001/jama.295.1.90>
5. Priem, J., Taraborelli, D., Groth, P. and Neylon, C., 2010; <http://altmetrics.org/manifesto> (accessed on 28 April 2015).
6. Tananbaum, G., <http://www.sparc.arl.org/sites/default/files/sparcalm-primer.pdf> (accessed on 28 April 2017).
7. Cave, R., Overview of Altmetrics Landscape (Powerpoint presentation), 12 November 2012; <http://www.slideshare.net/rcave/overview-of-the-altmetrics-landscape> (accessed on 25 July 2017).
8. Moore, A., *Bioessays*, 2016, 38(8), 713; doi: 10.1002/bies.201600132
9. Elwood, T. W., *J. Allied Health*, 2017, 46(1), 62.

Kuldeep Singh Shekhawat is in the Department of Public Health Dentistry, Century International Institute of Dental Sciences and Research Centre, Kasaragod, India; Arunima Chauhan is in the Department of Oral Biology, Faculty of Dentistry, Melaka Manipal Medical College, Manipal Academy of Higher Education, Manipal 576 104, India. *e-mail: drarunima@rediffmail.com*