

Going Beyond Citations: Using Altmetrics to Measure Research Impact

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Post Url

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Measuring the impact of a research publication is critical to every researcher's career. The assessment of scientific publications is increasingly critical to scholarly communication and the methods of assessing research impact have changed drastically in the last 20 years. Just as digital publishing has overtaken print publishing, quantitative assessment via journal metrics has overtaken qualitative assessment by peer reviewers. Increasingly now a days, one's research is evaluated by the citations garnered, including the H-index and Journal Impact Factor (JIF). Although this is a systematic approach, the scope of these traditional bibliometrics is limited to citations. However, new "alternative metrics" like altmetrics are now available that are dynamic and look beyond citations to measure the research impact.

What are Altmetrics?

"Altmetrics" is a term coined for novel methods designed to track and measure the social impact of scientific publications and the researcher influence. First proposed in 2010, altmetrics uses social media sites to measure the "buzz" around research output: namely, the attention being paid by people—in real time. This is possible due to the

near-ubiquitous and instantaneous telecommunications via mobile phones and the Internet. The hope is that altmetrics will supplement traditional bibliometrics to give a more vibrant and broader picture of the research impact.

How Does Altmetrics Work?

Altmetrics tracks the immediate research impact via a variety of web-based services, many of which track a user's activity online by collecting web-sourced information. Apart from the traditional citation counts, the number of views, downloads and bookmarks, shares and mentions in policy documents, press releases and news outlets, and even references in Wikipedia are tracked. But it is in social media where altmetrics truly goes beyond traditional bibliometrics, and into uncharted territory—both for science as an enterprise and researchers that practice it.

Journals now use social media platforms to publicize their content. In addition, there are a plethora of online research and science sites like *ResearchGate* and *F1000* that churn out commentary, almost daily. All of this talk and activity, both by scholars and the public, can be tracked vis-à-vis a scientific publication of interest—actually any research output—so long as it has a unique DOI identifier. In fact, altmetrics are not limited to just research articles and can be applied to datasets, source code, presentations, videos, books—even people too!

Clearly, altmetrics is intimately linked to open access content. Altmetrics examines and mines the social web for freely available information linked to a scholarly publication or article. Hence, they function as “open metrics.” Publishing research in an open-access journal should make it readily available to altmetrics service providers. These include only a handful, for now, namely *PLOS*, *Altmetric.com*, *Plum Analytics*, and *ImpactStory*. The indicators of research impact from these service providers vary from metric badges to summary reports, but they all track research articles.

Various Uses

Altmetrics attracts researchers because it offers a quicker way to demonstrate the potential impact of their scholarship when compared to traditional bibliometrics (JIF, *H*-index)—while also showing their public engagement. Thus, researchers can use altmetrics to tell a research “story” for grant funding and to further their career advancement. With altmetrics, researchers can monitor in real time the ripple effects of their personal research in both the scholarly and public realm and also manage their reputations.

Hence, altmetrics appeal especially to early-career researchers trying to make their mark in a field. A key tool, for both the researchers and journals, is the so-called “altmetric donut.” This colorful symbol carries a numerical score, which may be calculated for any research article having a DOI, and is being incorporated into online systems (e.g., Scopus). With this tool, it is possible to see which research articles are currently receiving extraordinary attention, and conversely, it lets researchers get a sense of social engagement with their work.

Another use is for publishers, who can quickly convey to their readers the “buzz” and attention surrounding their research articles. This may elicit both praise and envy (and lead to more discussion, which itself is a sign of potential impact). Likewise, altmetrics may enhance the value of academic institutions and their library holdings in the eyes of the public and government.

Pros/Cons of Altmetrics

There are several advantages to altmetrics, namely their speed and broad reach, and the fact that they operate at the level of the article (rather than the journal). In addition, altmetrics help researchers to measure the potential value of research outputs in a timely manner even though it lacks citations, thereby, providing an independent assessment of research engagement with the public and their feedback. Finally, altmetrics could easily be added to a researchers resume to strengthen and possibly hasten their career advancement. Like researchers, institutions can also use altmetrics to leverage and to justify their funding.

Innate to the social web is the risk of gaming the system and self-promotion, especially via social media. Some researchers may exaggerate the altmetrics scores and thus affect the eventual research impact measured. Making matter more complicated is how altmetrics should be interpreted which is still open to debate and scrutiny, but this could benefit from standardization in reporting. Finally, altmetrics are not amenable to fair comparisons between fields, and so they must be used cautiously in decision-making concerning grant funding and career advancement.

Future of Altmetrics

Most importantly, altmetrics should not replace traditional bibliometrics (JIF, H-index), but rather supplement them. Whether altmetrics can ease the overburdened peer review process, essentially by crowd-sourcing it remains to be seen. One thing is certain though, as a young discipline, altmetrics is quickly changing the dynamics and incentives of scholarly communication and scientific publishing. Altmetrics is very swift and researchers may soon feel like they need to speed up, rather than slow down.

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Cite this article

Enago Academy, Going Beyond Citations: Using Altmetrics to Measure Research Impact. Enago Academy. 2017/04/05. <https://www.enago.com/academy/going-beyond-citations-using-altmetrics-to-measure-research-impact/>