

## A conversation with Jason Priem on 03/13/13

### Participants

- Jason Priem — Co-Founder, Impact Story
- Alexander Berger — Senior Research Analyst, GiveWell

**Note:** This set of notes was compiled by GiveWell and gives an overview of the major points made by Jason Priem.

### Summary

Jason Priem is a PhD student studying information science at University of North Carolina at Chapel-Hill. He co-founded ImpactStory, which is a web-based tool that helps researchers share the diverse impacts of their research products, including nontraditional products such as data-sets, software and blog posts. ImpactStory aims to help shift academic communication toward more efficient web-based communication.

GiveWell spoke with Jason Priem as a part of our investigation of opportunities to improve academic research. The topics that were discussed are new and potentially more efficient ways of filtering scholarly content (altmetrics) and open access to academic research.

### Alternative metrics (altmetrics)

#### Impact Story

ImpactStory is a web-based tool that helps researchers share the diverse impacts of their research products, including nontraditional products such as data sets, software and blog posts. ImpactStory aims to help shift academic communication toward more efficient web-based communication.

ImpactStory was co-founded by Jason Priem and Heather Piwovar. It started as a hobby in mid-2012, and the current version launched in October 2012. It is funded by a \$125,000 grant from the Sloan Foundation.

#### More efficient ways of filtering scholarly content

Historically, the academic community has filtered academic outputs for interest by peer review and, more specifically, the prestige of the journals where papers are published. This model is inadequate relative to filtering mechanisms that are now in principle possible using the Internet.

It is now possible to use the web to measure the quality and impact of an academic output via *alternative metrics* ([altmetrics](#)) such as

- How many people downloaded it
- How much it has been discussed on Twitter
- How many websites link to it
- The caliber of the scientists who have recommended it
- how many people have saved it in a reference manager like Mendeley or Zotero

This is similar to how Google generates a list of webpages corresponding to a search term, since you can benefit from PageRank-type algorithms that foreground popular content in an intelligent fashion.

Some advantages of this approach are:

- *More robust assessment of the merit of an academic output* — Peer review of a paper reflects a single reviewer’s opinion of the merit of the paper. It should be possible to form a more robust assessment of the merit of a paper by incorporating the views of the whole academic community via crowdsourcing.
- *Assessment of nontraditional academic outputs* — The traditional publication system does not easily facilitate assessment of the impact of academic outputs such as software and data sets, which don’t take the form of papers. Altmetrics can be applied to these outputs in the same way that they can be applied to academic papers.
- *More nuanced views of the quality of an academic output* — In the traditional publication system, the decision to publish a paper in a given journal constitutes a binary assessment of the merit of a paper of the type “accept or reject.” Altmetrics can be used to measure an academic output’s merit on multiple dimensions.
- *Reducing the overhead of academic evaluation* – Peer review is typically closed and time consuming, and the same papers are sometimes peer reviewed by multiple publications as they move down the chain of prestige. By aggregating opinion from many scientists in a low-intensity way, this approach might be more efficient than traditional peer review. The startup Rubriq is also working on something similar; they provide independent portable peer review for submissions from authors. Rubriq also helps its clients find the best journals where their papers will be accepted.

## **Digital Humanities Now**

An example of a website that uses algorithmically generated rankings to filter web content is *Digital Humanities Now*.

It’s infeasible to sort through the massive amount of newly published material in the humanities on the web by hand. *Digital Humanities Now* uses algorithmically generated rankings to create a “shortlist” of candidate web content for the website to showcase. This allows editors to examine a much smaller collection of content and select the highest quality content for the website to highlight.

The website publishes the editors' choices on a weekly basis, and also publishes an open access peer reviewed journal called the *Journal of Digital Humanities* on a quarterly basis

The software that *Digital Humanities Now* uses for ranking web content algorithmically is *Press Forward*. The Mellon Foundation, amongst others, funded the creation of this software.

### **Organizations that work on altmetrics**

- ImpactStory
- Altmetric.com
- Plum Analytics
- PLoS Article Level Metrics. This is a standalone platform which journals can download and run, but which only PLoS has been using so far.

### **The potential use of altmetrics for evaluation of researchers**

There's been a significant amount of interest from funders and administrators in more nuanced and broader measures of researcher impact than their journal publication record. For example:

- The National Science Foundation (NSF) recently started asking grant applicants to list academic products rather than just academic papers. The NSF is starting to consider academics' web output.
- University of North Carolina at Chapel Hill is tentatively considering taking researchers' blogging into account in tenure and promotion decisions.

Algorithmically generated rankings of researchers' influence as measured by the altmetrics mentioned previously could be an input into hiring, tenure, promotion, and grant decisions. ImpactStory and other providers of alternative metrics could help researchers' aggregate their online impact so that they can present good summaries of it to administrators and funders.

Use of altmetrics at a small scale would not shift administrators toward using them *en masse*, but there's a general shift in the direction of the use of altmetrics, and small-scale efforts to promote altmetrics could speed up the shift.

### **Open access publication**

If researchers were to publish all of their academic outputs as soon as they were available, research practice would improve.

Not only does immediate publication speed up the rate at which information is

disseminated into the academic community, but it also facilitates immediate feedback on and and real time conversation about the most recent academic work.

### **Entities that work to increase access to data and research**

Some organizations and people that are working to increase access to data are:

- Jean-Claude Bradley and Carl Boettiger, who advocate Open Notebook Science, which is the practice of publishing all of one's research results in real time so that other researchers can benefit from it and offer feedback as soon as possible.
- *Push*, a journal built on GitHub (which may not have published any papers yet)
- figshare, an online data repository
- Dryad Digital Repository
- Social Sciences Research Network (SSRN)
- Annotum, a scholarly publishing platform based on Wordpress. If it were possible to create a journal that's as easy to publish as a blog, there could be a large increase in the number of open access journals.

### **Distribution of incentives to support open access**

Both junior and senior scholars may have incentives to support open access; those who are currently in the most competitive stages of their careers may face the highest obstacles to adoption.

Well-regarded senior scholars are in a position to advocate for shifts in scientific practice, and little disincentive since they are already tenured. Some of the most influential promoters of the open access movement are Michael Eisen, Johnathan Eisen, Michael Nielsen and Peter Suber, all of whom are senior scholars.

Younger scholars often find the 1+ year delay between paper submission and paper publication to be inefficient. Because they grew up using the Internet in its modern form, they find it natural to communicate their research online.

Some graduate students and postdoctoral fellows in crowded academic fields have low risk aversion because their chances of getting a good tenure track position are low. For this reason, they're willing to experiment with creating web-based content in addition to traditional academic outputs on the chance that doing favorably differentiates them from most applicants.

### **Foundations that fund work on open access and altmetrics**

Some foundations funding in work on promoting open access, altmetrics, and new approaches to scholarly communication are:

- The Sloan Foundation
- The Kaufman Foundation

- The Mellon Foundation

### **People for GiveWell to talk to about altmetrics and open access**

- Andrea Michalek, Co-founder of Plum Analytics
- Euan Adie, Project Manager at Digital Science
- Martin Fenner, Technical Lead for the PLoS Article Level Metrics Project
- Jennifer Lin, Project Manager at PLoS
- Cameron Neylon, Director of Advocacy at PLoS
- William Gunn, Head of Academic Outreach at Mendeley. Mendeley is a research management platform. Gunn has been involved with the Reproducibility Initiative.
- John Wilbanks, Senior Fellow at the Kauffman Foundation. Wilbanks previously worked with Creative Commons.
- Sam Arbesman, Senior Scholar at the Kauffman Foundation. Sam wrote *The Half-life of Facts* and has thought about the epistemology of science in general.
- Chris Mentzel, Program Officer at the Moore Foundation. He focuses on enabling scientists to organize the large amounts of data that are now available to answer scientific questions.

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