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Citation: Singer, J. (2008). Publish (and Be Popular) or Perish: Value Metrics for Scholarly Work in a Digital Environment. *Journalism Studies*, 9(4), pp. 595-604. doi: 10.1080/14616700802114407

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This essay was included in a two-part article titled: New Media, New Scholarship

Abstract available at: http://www.tandfonline.com/doi/full/10.1080/14616700802114407#.U_t6eLSvvVo

DOI: 10.1080/14616700802114407

Please cite as:

Singer, J. B. (2008). Publish (and Be Popular) or Perish: Value metrics for scholarly work in a digital environment. *Journalism Studies* 9 (4), 599-604.

**Publish (and Be Popular) or Perish:
Value Metrics for Scholarly Work in a Digital Environment**

Jane B. Singer

(Based on presentation to AEJMC JHistory Internet Group, August 2007)

The Internet affects a great many aspects of scholarly work, including how we find what others have done in the area we're interested in -- that is, how we go about conducting our literature review. This essay looks at changes in how we locate what others have learned and some of the implications for our own published research.

Back in the day, the process worked something like this: We got an idea and we wondered who else had had a similar thought or moment of curiosity. So, perhaps with guidance from a colleague, an advisor or an old grad school syllabus, we set off for our university library in search of one or two seminal articles or maybe a foundational book about our topic.

If we were lucky, we actually found the book or the journal containing the article we were after, dusted it off, and read it. But mostly, we pored over the reference list because the item's value was two-fold. Part of that value lay in the individual work itself -- seminal, remember. But it was valuable also because it was a crucial node in a network. The article or book provided us with a road map to other work in the area that interested us. We repeated the

process for those referenced items and kept going until we had what felt like a decent grounding for what we wanted to do. Then off we went to do it.

Essentially, then, the scholarly grounding central to the cumulative nature of the scientific endeavor has always taken the form of a network analysis. There are key nodes within a network of interconnected works and interrelated ideas; as scholars, we tap into that work, see how our ideas connect with those of others who preceded us and finally, we hope, extend both the work and the network ourselves.

The system of tracking down hard copies had both advantages and disadvantages. On the down side, who among us has not discovered that all the volumes of a particular journal are right there on the shelf except the very one we need? More important, the method made it hard to find current or even recent work in a field. If we start with seminal articles and work from there, we're relatively unlikely to find things published after our starting point. The process also meant that we were more or less dependent on the due diligence of others. If they missed something important, so did we. And if they were after something a little different from what we were after, we could again miss out.

From a publisher's point of view, though, it was a nifty system. It meant there was a clear value in libraries buying, binding and keeping full volumes because each issue is likely to contain the key article for somebody. For researchers, one key advantage came when we happened upon a themed issue, with other articles on the same topic – ones that obviously would not turn up in reference lists within the same issue. We could hold in our hand a collection of related works that we might not have known about otherwise.

This is essentially similar to the ‘serendipity factor’ of reading a newspaper or magazine. The publisher produces a concrete, finite package, and you, dear reader, can discover unanticipated treasures by leafing through its pages. But when the newspaper or magazine moves online, many things change, and one of them is the way we arrive at an individual piece of content.

Media publishers who are now online seem to believe that their readers still come to their home pages and go from there, just as their print readers buy the paper, look at the front page and then move inside. However, that is not what growing numbers, probably by now a majority, of online readers do at all.

Online readers come to media content through news aggregators such as Google News or Yahoo! News. Or they come through some other tool they have used to indicate personal preferences: digg.com, del.icio.us, whatever. Or they come through search engines such as Google, through the process of following links from a blog or through any of a number of other ways that share a key characteristic: They lead to a single item, a single story, rather than to the package that the publisher has produced. In fact, most of those users will never see the package at all. They will access the one item, then pop back out of the site -- unless the media organization can find some way to keep them there. But that’s a topic for another day.

My point is that we as scholars are increasingly likely to do exactly the same thing – or we would if the tools available to us were as good. At the moment, they’re not. But Google, ever quick on the uptake, does provide a nice little search tool for scholars called, logically enough, Google Scholar, and it will serve nicely to illustrate my point.

Like all their other search tools, it works using keywords. So I type in 'agenda setting,' for example, and up comes – when last I checked -- a linked-up list of 374,000 articles, with the seminal 1972 work by McCombs and Shaw at the top, thank you very much. And with a click, I can get the work itself, if the publisher has made it accessible, or at least an abstract of it, potentially with the ability to download it. If I am fortunate enough to be connected with an excellent academic library such as the one at the University of Iowa, I can instruct the tool to give me the option to click through to that version.

I also get options to click to other articles by Max McCombs or Don Shaw or a handful of other scholars who have written about agenda setting. Alternatively, I could have searched on their names, as well. And there are, of course, advanced functions to let me refine my instructions in the usual Google-y way.

So that network of scholars that I once had to piece together myself is now instantly and automatically generated for me. This is, for me, one of those 'How did I ever live without it?' tools. Perhaps the only down side I can think of relates to that idea of a themed issue of a journal. Because I am seeing articles in disaggregated bits, based on keywords, I may well miss the package of related content put together by an editor or a publisher. So I may never see articles related to, and published simultaneously with, the first one I chose because the physical association of articles published in the same issue vanishes. I also am likely to miss contextual information such as an editor's note tying together the items in a themed issue -- especially if the algorithm delivers that item on page 27,498 rather than on pages one or two or three, which is about as far as I'm apt to go.

More broadly, this tool changes the gatekeeper role for scholarly publishing just as for general interest media. In doing so, it changes the way value is determined. The value of the package, the aggregated product the editor has compiled, diminishes greatly -- because the user probably never see that package at all. Just as I never see the newspaper or even the newspaper home page, I never see the academic journal -- online or in print. Instead, I drop down to see a single article, a single item that I'm looking for, within it.

On the other hand, two other sorts of values increase greatly. The first is the value of an individual piece. That value, currently, is still initially determined by a small number of individual gatekeepers -- the editor and the reviewers, whose role is to serve as surrogates for journal readers by determining whether, in their opinion, a manuscript will interest those readers. (The selection process could be opened up to larger numbers of actual peer reviewers, in something closer to a wiki format. There have been some moves in that direction though, as of this writing, they remain rather tentative.)

But the individual item must have another kind of value in this world, as well. It must have value determined by its worth to those who read it. That 'reputational' value, as we know, can be precisely determined online, for instance by the algorithms of search engines or aggregators that consider links, hits, references and other indications of merit based primarily on the amount and type of usage an item attracts.

In fact, if the piece does not have this kind of value, I may not ever see it. The more links, the more hits, the more references from others and so on, the higher the ranking in the search results. An article that no one cares about will sink like the proverbial stone. It may be

published, and it may be a nice line on the vita. But no one except the author's mother and tenure committee will ever know it's there.

Moreover, that's true to a far greater extent than in the print world. When I get my issue of *Journalism Studies*, I turn to the table of contents to see what the package contains. As I flip from there to check out the pieces that catch my interest, I am relying on the judgment of three or four people -- the editor and the reviewers -- who decided that it was worthy of publication. But in reality, that handful of gatekeepers could only make an educated guess about the actual utility of that article to me, a journal reader.

That's just not how it works online -- and increasingly, online is where I go for my scholarly research. While the last article in the printed version of the *Journalism Studies* table of contents is just as likely to catch my eye as the first article, the last article of 374,000 matching my keyword request ... well, not so much. For all intents and purposes, Page No. 1,000 in the Google Scholar hit list might as well not exist. For that matter, Page No. 10 might as well not exist -- virtually no one will ever get there.

To summarize, scholarly publishing is based on the idea of a jury of peers. That's the whole premise behind blind review, of course. But again, it is only a surrogate jury, a few people who make judgments about what they think others will find valuable. Online, there is a second jury, a greatly expanded one, of real rather than surrogate readers. They determine whether, once published, a piece will actually be seen. So in an online world, whether other people will find an article at all depends to a significant extent on how good its readers -- all its readers, large numbers or small (and the count matters) -- deem it to be.

Just as in the print world, then, quality remains a crucial value -- but unlike in the print world, determination of quality is now two-tiered. One tier is provided by traditional gatekeepers, the editors and reviewers, who (at the moment) still decide on initial publication. But an important new tier comes from readers, as indicated by links, hits, references and so on.

This brings me to the second kind of value that is important in this world: the value of connection. This one requires less room to explore here because it's such an obvious component of the medium itself. As described above, scholarship has always been a network, with one reference leading to another and another, a system of linkages within and among members of a scholarly community made up of people interested in related topics, ideas, approaches or theories. Our work has always been built on those connections, and they are an inherent part of the medium that we now use to conduct that work. Indeed, the Internet was born in this academic environment and is perfectly suited to it.

But perhaps ironically, online tools for scholars currently underutilize this value of connection. Keyword lists are a start -- but only a start. The value of an article online lies not only in its own merits but also in its connections to the works of others. If I ran the academic publishing world, I'd be working on a way to turn all those reference lists and bibliographies into live links, creating a true network of scholarship. Media companies are getting over the idea of keeping users solely on their sites and are beginning to understand the true value of links. Academic publishers can and should get there, too.

Once that sort of system exists, it should be a fairly short step to something else of real value to us. Call it the Google News-ization of scholarly publishing. I want to set up a site in which I tell the tool to compile for me all the academic articles on topics of my choosing -- one

section on scholarship in digital journalism, one section on work in journalism ethics, one section on political communication and so on. And when new research is published in those areas -- or when something achieves a certain level of reputational value, as described above -- up it would come for me. Voila: my own little personal scholarly journal!

One final point is that these changes in the assignment of value and the role of the scholarly gatekeeper also clearly raise a need to rethink what constitutes authority in our world.

Michael Jensen (2007), who is director of web communications for the National Academies, a science research support group based in Washington, DC, offers interesting ideas along these lines in a recent article in the *Chronicle of Higher Education*.

He proposes a variety of authority mechanisms, some of them similar to the notions of value that I just suggested. He describes an online environment he calls Authority 3.0. If we're now on Web 2.0 -- a media universe premised on social connections, as well as openness of communications and contributions to communication spaces -- he suggests that Web 3.0 will be a world in which we emphasize the use of those social networks to assign value to the vast amount of content. So Authority 3.0 is a term for metrics based on reputation and user-generated authority, much as I've just described.

In this environment, he says, value or authority comes from an interplay of measurement techniques, an interplay too complex for a human to compute but that programmers could turn into an algorithm rather neatly. For example, he suggests combinations of prestige, links, conversations about a topic, longevity, inclusion in indices and the like.

This shift will have implications for all of us in academia. For authors, he says, the key is to be more visible. Both the parameters of and the strategies for visibility have changed. There are certain to be thousands – maybe tens, maybe hundreds of thousands -- of documents similar to your document online. Again, 374,000 hits on agenda setting – imagine!

‘If you are writing a scholarly article about the trope of smallpox in Shakespeare drama, how do you ensure you’ll be read?’ he asks. His answer: ‘By competing in computability.’ You do that by encouraging friends and colleagues to link to your online document -- and, in return, linking to theirs. By instigating online back-and-forth with interested readers. By encouraging the widest possible access – free access -- to your work. In general, he urges authors to know what the metrics are and to use them to their advantage.

For universities, he says, there will be a corresponding need to recognize these new metrics when it comes time for promotion and tenure. Getting published – getting past the first set of gatekeepers – counts. But getting read and talked about should count, too. Maybe having an article that gets a lot of links from other scholars should count more than an article that no one pays much attention to, even if it’s published in a ‘better’ journal. Whatever the specifics, the important thing is that universities also know about and recognize these new hallmarks of authority in an interconnected world.

For publishers, Jensen warns, the questions are hardest of all. It is time, he says, to abandon tired copyright-infringement battles and to simply open journal content for universal access. Remaining locked behind subscription walls means marginalization because items in such journals, and thus the journals themselves, simply won’t be counted in the new authority measures. So academic publishers need to find new business models and new mind sets. It

sounds like a pipe dream, but in fact, the need is every bit as compelling for mainstream media outlets that face similar issues and pressures. They, too, no longer control information the way they once did. They, too, are no longer the sole determiners of either the value or the authority of that information. And while they may not be deliriously happy about this changed world they inhabit, they are, however reluctantly, getting on with figuring out how to make it work for them, their readers and their commercial clients. At some point, academic publishers are going to have to do the same.

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