3rd June 2014, Wednesday (Day 2)
Parallel Session 3A
11:00 – 12:50
Auditorium

1. Dr. Kim Holmberg (Finland/UK) “The meaning of altmetrics”
2. Dr. Stefanie Haustein and Dr. Vincent Larivière (Canada) “Mendeley as a source of global readership by students and postdocs? Evaluating article usage by academic status”
3. Joan Wee Jee Foon and Chia Yew Boon (Singapore) “Altmetrics is an indication of quality research or just HOT topics”
4. Zohreh Zahedi, Dr. Rodrigo Costas and Prof. Dr. Paul Wouters (Netherlands) “Assessing impact of the publications read by the different Mendeley users: is there any different pattern among users?”
I have introduced myself as a New Media staff. Concurrently, my co-author and I are also a Social Science Librarians.

I have helped my faculty with compilation of citation counts and understand how stressful it can
be! I also hear first hand some of the complaints about citation counts and how arts & social sciences researchers are being disadvantaged.

Therefore, we are very interested in altmetrics. In this paper, we begin a short exploratory study and examine how it could be used to help our professors.

Altmetrics is attractive because it draws a lot more data from a variety of sources. For my arts & social sciences researchers, it could imply showing greater visibility of their research compared to using WOS citation counts.

Altmetrics captures engagement when

a high school student used an article for her class project and mentioned it in her the school course blog;

a business analyst used an article for their business project and tweeted about mentioned it;

a fellow research who had found an article interesting and bookmarked it in mendeley but did not use it in his research. Another researcher knew of the article from mendeley and cited it in his research later.
Alternative metrics captures the social impact, collaboration and interactivity effects of an article.
Altmetrics measures impact (Priem, 2012)

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Faculty of 1000: the publisher of four unique services that support and inform the work of life scientists and clinicians. (http://f1000.com/)
Popular press: magazine and newspapers, trade journals
CiteULike: a web service which allows users to save and share citations to academic papers.
Tools available

- altmetric.com
- impactstory.org
- plumanalytics.com
- PLoS metrics
We like to find out if...

- Top 20 most cited articles in WOS across 18 broad subject categories have an altmetric score;
- Top 20 articles with highest altmetric score have WOS citation for the same 18 broad subject categories;
- altmetrics only measure popular research topics that is more “newsy” in nature.
We examined at a total of 720 articles, made up of 360 articles in WOS and 360 articles with the highest altmetric scores from altmetric.com.

We use altmetric.com because it assigns a specific score to the articles using a formula. This is an interesting feature because it assigns different weights to a tweet or a blog posting or mention of an article in mendeley and aggregates them to derive an altmetric score. As such, it allows us to prepare the social impact of different articles easily.

For consistency, we used the Categories in WOS. The time period is articles published bet 2011-2013.

To pull articles from altmetric.com, we have to make a few adjustments.

One, altmetric.com Librarian dashboard does not allow for filtering of publications by year. However, most of the articles in altmetric.com with high altmetric scores are published between 2011 – 2013, though there are also a few articles published in 1980s.

Two, we use a longer time period 2010-2013 to pull articles from altmetric.com as it usually takes 2-3 years before an article gets citation counts in WOS.

Three, to ensure consistency in retrieving articles, we use the 18 subject categories in WOS. Due to the limited subject categories in altmetric.com, we searched for articles using the “keyword” field instead of “subjects” field.
This chart presents one way of looking at the relationship between high citation and high altmetric score.

For each of the 18 subject categories, this chart plots the likelihood that a highly cited article in say, medicine has an altmetric score against the likelihood that an article in medicine with a high altmetric score will be cited in WOS.

The relationship for the different subjects are mixed.

High correlation between high citation and high altmetric score is seen for subjects such as medicine and biology.

Moderate correlation is seen for psychology, sociology and economics.

For the other 13 subjects, the correlation is low.
Here, we computed the Pearson Correlation

Subjects like medicine, sociology show high to moderate positive relationship but not for other subjects like psychology and biology. Biology even reflect negative correlation.

(Skip this to avoid questions of how the values are chosen?) Coefficient of +0.40 to 0.69 is taken to indicate strong positive relationship, +0.30 to +0.39 for moderate positive relationship, +0.20 to +0.29 for weak positive relationship, +0.01 to +0.19 for no-negligible relationship.

I have highlighted subjects with moderate and high correlation of more than +0.3.

Upon closer examination, an important reason for negative or low correlation is the differences in the universe of articles indexed by WOS and altmetric.com
Took the article for medicine for the highest altmetric scoring to examine this relationship further. High altmetric score of 821 but only cited 20 times in WOS

The presence of co-existence does not imply that a “hot” topic is also well-cited while a “heavy” cited paper may not be necessary well-mentioned no social media.

Why?
Different baskets of indexes?
Nature of research topic?
Newsy in nature so very high altmetrics figure.
Low altmetric score but high citation count

So far Altmetric has seen 8 posts from 7 blogs.

Richard Lehman's journal review – 4 July 2011
Latest BMJ blogs
NEJM 30 June 2011 Vol 364 2483 The world of African emergency medicine is one which many noble British GPs have visited, by...

Improved Survival with Vemurafenib in Melanoma with BRAF V600E Mutation
By: Chapman, Paul B., Hauschild, Axel, Robert, Caroline, et al.
Group Author(s): BRFM-3 Study Grp.
NEW ENGLAND JOURNAL OF MEDICINE Volume: 354 Issue: 26 Pages: 2507-2516 Published: JUN 30 2011
Times Cited: 1,423

Mentioned by
By Benjamin P. Geisler, MD, MPH Faculty peer-reviewed July 28th was World Hepatitis Day. Just three days prior, a group of resea...
31-Jul-2012

Melanoma sequencing identifies new druggable targets
Free Association
Next-generation sequencing technologies are enabling unbiased searches for new cancer genes at an unprecedented scale. In 2011, ...
19-Aug-2011
In recent years, there have been a number of studies trying to make sense of altmetrics and how to correlate it with tradition citation and how it measures research impact. As an Academic librarian, I wanted to find out what it is for my user, can I integrate altmetrics as a service to my user just as our library providing citation count to our faculty and research. How can I value add as a librarian.

Most correlation studies have mainly covered established journal titles and sources like *Nature, PLoS, arXiv* and *PubMed*; and fields that favour internet searching in areas where current developments are well sought after (for example, medical and scientific fields). This paper aims to find out if the top most cited articles in WOS across broader categories of disciplines will too enjoy high altmetric score and vice versa; and whether this is tie to specific subject fields at a broad scale. Thus linking us to find out if altmetrics measure popular newsy research topics rather than “heavy” research.

Evaluate Resesrch ➔ Read but may not cite. Traditional citation counts takes a few years to accumulate. Yes...you can use Journal Impact Factors but there is a skew of citation distribution. Not a good indication for article level evaluation. Social media mentions help to make this possible.

1/3 of the audience might be non-academic reader. Kurtz and Bollen classified readers of scholarly publications into four groups: researchers, practitioners, undergraduates and the interested public. Whilst all of these might use the social web, the first group is the most likely to publish scholarly papers.
this study compares 11 altmetrics with Web of Science citations for 76 to 208,739 PubMed articles with at least one altmetric mention in each case and up to 1,891 journals per metric.

Compare tweetations (this differs from counting tweets as one tweet can tweet 2 articles and should be counted as 2 instead of 1), compare number of tweets for past 60 days with scopus and google scholar citation for articles published in JMIR between July 2009 and 2010. “Highly cited articles were defined as articles that were in the top 25th percentile of each issue and “highly tweeted” articles were defined as articles that were in the top 25th percentile of each issue (ranked by tweetations).

Above graph shows 55 articles published between these period with an average of 21.2 tweetations within 365 days.
Is altmetrics just measuring hot topics? Yes.... It seems likely (refer back to 2 examples).
“Altmetrics: Value all research products” by Heather Piwowar who shared that the US National Science Foundation (NSF) now also takes into account a scientist’s worth based on the data sets, software, patents, copyrights and other non-traditional research productions other than their publications.

NSF (National Science Foundation)
Next we look at what contributed to the high altmetric score for the articles in the 18 subject categories.

Our results are similar to Thelwall, 2013 study that majority of social consumptions is from mainly due to tweets.

It is clear that Tweets contributed significantly to a high altmetric score for all subjects. It ranges from 89% for Economics to 65% for Applied Chemistry. The other altmetric sources – Facebook, News and Blogs are generally less impactful with some exceptions.

For certain subject fields like Chemistry, Computer Science and Art, there are some subtle differences.

Facebook also strongly impacts the altmetric scores for Music, Multidisciplinary Engineering and History.

News plays a bigger role in Computer Science, Applied Chemistry, History, Art and Communication.

Blogs are important to Applied Chemistry and Literature.
Why is tweeting so significant?

By doing a content analysis of the type of tweets sent by researchers for 5 different disciplines: astrophysics, biochemistry, digital humanities, economics, and history of science. (Holmberg & Thelwall, 2014), this study concluded that researchers share more links than the average twitter users, with 27% of their tweets as being retweets as compared to 3% of tweets for the average twitter users.

One immediate idea is that we need to get our staff/professors to tweet more often!
Taylor shared a few interesting case studies on how differences between discipline’s structures and their relationship with social tools will affect their scoring. An interesting example of when primary economic research does come to attention and an illustration of the disproportionate nature of social mentions and impact can be seen in the 2013 criticism of Reinhart and Rogoff’s 2010 paper “Growth in a Time of Debt”. The paper is described as a ‘foundational text’ of austerity programs and according to ImpactStory received fewer than 100 social mentions. The methodological critique that discovered Excel errors and other problems received 250 social citations.
How accurate is the altmetrics data?  
The Case of under-reporting Tweets
Taylor mentioned another example on a high profile story “£30 cancer tests on the National Health Service within 5 years” reported on March 27/28, 2013 in all the major UK news based on research that found genetic markers for breast, prostate and bowel cancer. This research is likely to have a strong social impact, however, when he reviewed the tweets and comments and links to the mass media reports, none was linked to the research, or used any helpful hash tag that would have helped disambiguate tweets about the test versus any other news relating to the forms of cancer.
Recommendations

- This is a brief and exploratory study
- Do content analysis for articles with high altmetric scores to determine if they are scholarly
- Use a larger bigger dataset
Conclusion

- Weak or no direct correlation between altmetrics and citation counts for many subjects
- Except for a few subjects, an article with a high altmetric score does not imply it will be highly cited and vice versa
- An article with a high altmetric score may be focusing on a hot topic
Thank you =)
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