Metrics: Journal metrics, article metrics, author metrics, altmetrics.

Facilitated by: Lise Brin, Rita Campbell, Russell Wyeth

Wednesday, October 16, 2013
12:15 pm -1:15 pm
Agenda

- Metrics (journal, article, author, altmetrics)
- Metrics in the social sciences and humanities
- Increasing – or “owning” your online presence (an example)
- Discussion
Metrics

Measurement of research impact of scholarly publications

- **Journal level**
- **Author level**
- **Article level**
- **Altmetrics**

All have limitations
- Understand what is being measured
- Many were developed for STM disciplines
- Disciplines have different publishing patterns
- Are all authors included in stats?
- Gaming?
Metrics Landscape

“increasingly crucial role of impact analysis in grant evaluation, hiring, and tenure decisions”


- eliminate dependence on journal-based metrics in funding, appointment and promotion
- assess the research on its own merits not journal merits
- explore new indicators of significance and impact

May 16, 2013

http://am.ascb.org/dora/

Signatures to date: 9,492 individuals; 407 organizations

American Society for Cell Biology; American Association for the Advancement of Science, the Wellcome Trust, the Association for Psychological Science, the European Sociology Association, the Linguistic Society of America, WRDSB

Journal Metrics

Impact Factor
Average number of times a journal is cited over a 2 year period
# articles cited in one year/ # articles published over prev. 2 year period

Eigenfactor
Number of times articles published in a journal over 5 years are cited in a year. Citations to the same journal are removed. Quality of the citing journal is a factor as is difference in discipline publishing.

h5-index
The largest number h such that at least h articles in that publication were cited at least h times. An journal with h5-index of 8 has, over 5 years, at least 8 articles that were cited 8 times.

SJR – SCImago Journal Rank
Number of citations received by number of articles, weighted depending on the prestige and subject area of the journal.

SNIP- Source-Normalized Impact per Paper
Weighs citations based on the total number of citations in a subject field.
Journal Metrics

**Impact Factor** [over a 2 year period]

**5 year impact factor** [over a 5 year period]
   # articles cited in one year/ # articles published over prev. 5 year period

**Immediacy index**
   # articles cited in one year/ # articles published that year

**Cited half-life**
   Median age of articles cited

**Aggregate Impact Factor**
   The impact factor for a subject

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**Eigenfactor**

**Article Influences Score**: average influence of each article

Uses Journal Citation Reports data

Adjusts for discipline differences

Quality of the citing journal is a factor

Journal size can influence ranking

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**Open Access**
Journal Metrics

**SJR**
Uses Scopus database data

**Open Access**
SJR uses a version of Google Page rank

**Scopus**
The largest abstract and citation database of peer-reviewed literature.

**SNIP**

**SJR**
Elsevier (arms length)
Journal Analyzer

**h5-index**

**Open Access**
Metrics for journals with > 100 articles in past 5 years
Crawls websites
Inconsistent metadata an issue

**Open Access**
Depends on publisher participation
Uses “field rating” similar to h-rating – for a discipline
Article/Author Level Metrics

Citations
Number of times cited in the literature

Usage
Number of times viewed on a website (publishers)
Number of times downloaded
How often the supplemental data has been accessed

Captures
How often it has been bookmarked/shared
(CiteULike/Mendeley)

Mentions
Number of times blogged about
How many news stories
Mentions in Wikipedia etc.
Comments on publishers website & elsewhere

Social Media
Facebook shares/likes
LinkedIn shares
Tweets


Altmetrics
Scholarly visibility & social visibility
H-index (2005)

A scientist has index $h$ if $h$ of his/her $N_p$ papers have at least $h$ citations each, and the other $(N_p-h)$ papers have no more than $h$ citations each.

Proper identification of the author is important.

**ORCID – Open Researcher & Contributor**  [http://orcid.org/](http://orcid.org/)
registry of unique researchers – method of linking research across platforms

Platform specific IDs: ResearcherID (WoS)

**ISNI - International Standard Name Identifier**  [http://www.isni.org/](http://www.isni.org/)

**VIAF - Virtual International Authority File**  [http://viaf.org/](http://viaf.org/)
Article/Author Level Metrics

Web of Science®

Citation Report: Author=(Campbell, RC)
Timespan: All years. Databases: SCOPUS, SSCI, SSCI-SSH, CPCI-S.
This report reflects citations to source items indexed within Web of Science. Perform a Cited Reference Search to include citations to items not indexed within Web of Science.

Published Items in Each Year

Citations in Each Year

Results: 68

Results: 68

Use the checkboxes to remove individual items from this Citation Report or restrict to items published between 1989 and 2014.

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<th>Standard versus high dose CVVHDF for ICU - related acute renal failure</th>
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<td>Authors</td>
<td>Tolwani, Ashta J, Campbell, Ruth C, Stoff, Brenda, et al.</td>
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<td>Conference</td>
<td>12th International Conference on Continuous Renal Replacement Therapies</td>
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<td>Location</td>
<td>San Diego, CA, DATE: MAR 07, 2007</td>
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<td>Source</td>
<td>JOURNAL OF THE AMERICAN SOCIETY OF NEPHROLOGY. Volume: 19, Issue: 6, Pages: 1233-1238</td>
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<td>DOI</td>
<td>10.1681/NPH.20071111174</td>
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<tr>
<th>Title</th>
<th>Racial differences in the prevalence of chronic kidney disease among participants in the Reasons for Geographic and Racial Differences in Stroke (REGARDS) cohort study</th>
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<tr>
<td>Total</td>
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<tr>
<td>Average</td>
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<td>2014</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>231</td>
</tr>
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Article / Author Metrics

Google Scholar

WEB OF KNOWLEDGE

MathSciNet
AMERICAN MATHEMATICAL SOCIETY
Mathematical Reviews
ISSN 2167-5163

ResearchGate

Scopus
The largest abstract and citation database of peer-reviewed literature.

Mendeley
Tools for metrics

Free

Publish or Perish  http://www.harzing.com/pop.htm
Free software that retrieves and analyzes academic citations. Uses Google Scholar and Microsoft Academic Search

Impact Story  http://impactstory.org/
ImpactStory is an open-source, web-based tool that helps researchers explore and share the diverse impacts of all their research products—from traditional ones like journal articles, to emerging products like blog posts, datasets, and software.

PLOS Article-Level Metrics (ALMs)  http://article-level-metrics.plos.org/
ALMs provide a suite of established metrics that measure the overall performance and reach of published research articles.

Fee based (reasonable)

Altmetric  http://www.altmetric.com/

Plum Analytics  http://www.plumanalytics.com/index.html
Citations across the Disciplines

Figure 1: The average number of references per article per discipline

Author’s note regarding data: “This study was conducted using a small sample of 63 journals. In order to test the findings in this study, a much larger scale is needed and therefore it is necessary to analyze more journals per discipline. In a larger study, it will be important to include at least 20 journals per discipline in order to have a sufficient amount of journals and citations to analyze.”

Hammarfelt, B. (2012). Following the Footnotes: A Bibliometric Analysis of Citation Patterns in Literary Studies.
http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-170504
Citations across the Disciplines

The citation age distribution of published articles from 2003 in different disciplines. When calculating the Impact Factor of journals, the citations taken into account are from 2001-2002. The citation material is from the Thomson Reuters Web of Science database.


https://wiki.oulu.fi/display/tor/1.3.1.7+Evaluation+of+disciplines+and+research+fields
Metrics in Social Sciences & Humanities

- **Scopus** includes social sciences and humanities
- **JCR Social Sciences Edition** has more than 2,600 journals in social sciences
- **Web of Knowledge**
  - Social Sciences Citation Index (1898-present)
  - Arts & Humanities Index (1975-present)
    - citations in books are not included in these datasets
- **Book Citation Index** (40,000 titles)
- GoogleScholar – My Citations
- ERIH
Metrics in Social Sciences & Humanities

- European Reference Index for the Humanities (ERIH) produced by the European Science Foundation

https://www2.esf.org/asp/ERIH/Foreword/index.asp
Metrics in Social Sciences & Humanities

- Some of StFX’s electronic resources include cited references:
  - America: History and Life
  - Historical Abstracts
  - PsycINFO
  - PsycARTICLES
  - SPORTdiscus
  - Sociological Abstracts
  - Business Source Complete
Metrics in Social Sciences & Humanities

• generally understood as difficult to quantify with a number
• recommendation is typically to use any metrics only in combination with other assessment tools
• interesting thesis about the future of citations and metrics in humanities*

*Hammarfelt, B. (2012). Following the Footnotes: A Bibliometric Analysis of Citation Patterns in Literary Studies. http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-170504
Universality of Metrics?

- “recent burst of interest in field normalization of impact metrics”
- explosion of new metrics – with unsubstantiated claims of universality (despite discipline bias)
- quantitative analysis of universality of nine existing metrics finds that none provides accurate universal measure

http://stfx.libguides.com/openaccess
Thank you!

Discussion?