Research Impact Measures - The Times They Are A Changin'

Impact Factor, Citation Metrics, and 'Altmetrics'

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H.T. Coutts Library
August 12, 2013

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Outline

1. The Basics
2. The Changes

Impact Metrics are…

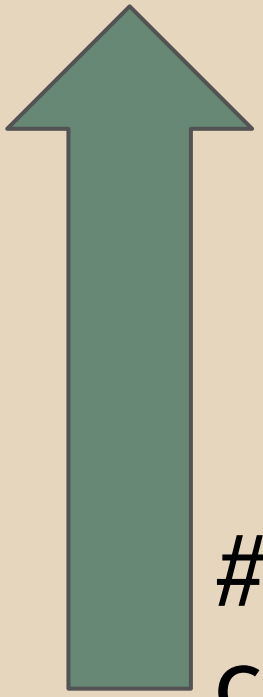
…calculations/algorithms that quantify the **impact** of research or scholarly activity.

Research Impact defined...

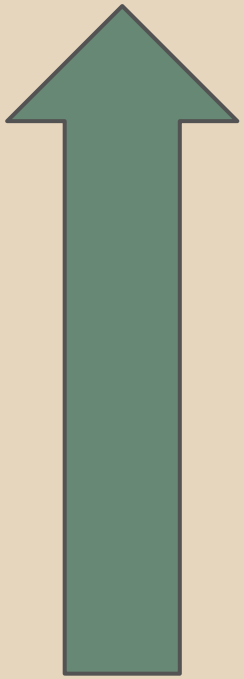
"Impact is usually demonstrated by pointing to a record of the active consultation, consideration, citation, discussion, referencing or use of a piece of research."

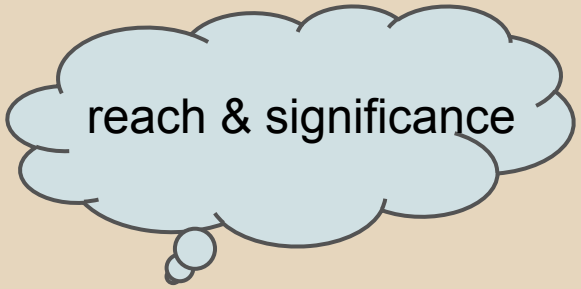
http://blogs.lse.ac.uk/impactofsocialsciences/introduction/

The Basic Premise*



# of citations





impact*

* IMPACT DOES NOT MEAN QUALITY

http://altmetrics.org/manifesto/

Caveats and cautions

- Citations are not always received for valid reasons
- Self-citation
- Database coverage:
  - h-index will be different in Web of Knowledge/Science, Scopus and Google Scholar
  - Education/Social Sciences/Humanities not covered well in citation databases

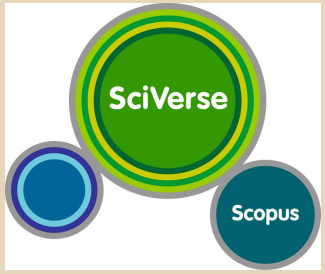
Caveats and cautions (part ii)

I am not an expert...

I know enough
to be dangerous!

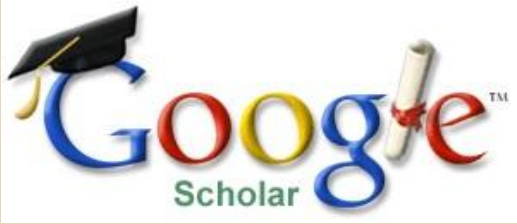
3 Main Providers

Scopus



Web of Science/ Knowledge

Google Scholar



3 Levels of Metrics

1. Journal Level

2. Author Level

3. Article level

The behaviour of Labrador retrievers in suburban backyards: The relationships between the backyard environment and dog behaviour

Amanda Jane Kobelt [a,b,*], Paul H. Hemsworth [a,b,c], John L. Barnett [a,c], Grahame J. Coleman [a,d], Kym L. Butler [c]

[a] *Animal Welfare Centre, 600 Sneydes Road, Werribee, Victoria 3030, Australia*
[b] *University of Melbourne, 600 Sneydes Road, Werribee, Victoria 3030, Australia*
[c] *Department of Primary Industries, 600 Sneydes Road, Werribee, Victoria 3030, Australia*
[d] *Monash University, Department of Psychology, PO Box 197, Caulfield East, Victoria 3145, Australia*

Accepted 25 July 2006
Available online 6 September 2006

Abstract

Most pet dogs in urban Australia are confined to their owners' property in a suburban backyard. Despite the literature on the effect of captive environments on both farm and zoo animals, there is little objective

Journal Level Metrics

"Impact Factor"
- most well-known

Impact Factor

calculated by dividing the *number of citations* in the [Journal Citation Reports] year by the *total number of articles published* in the two previous years

Impact Factor:

$$\frac{\text{\# of citations in 2012}}{\text{\# of articles published in 2010 \& 2011}}$$

but, only citations in Web of Science/Knowledge

ISI Web of Knowledge℠

Journal Citation Reports®

Select a JCR edition and year:

- JCR Science Edition 2011
- JCR Social Sciences Edition 2011

Select an option:

- View a group of journals by Subject Category (Subject Category / Publisher / Country/Territory)
- Search for a specific journal
- View all journals

SUBMIT

Note: you need to sort the results by impact factor; defaults to alphabetic listing

Journal Summary List

Journal Title Changes

Journals from: subject categories EDUCATION & EDUCATIONAL RESEARCH VIEW CATEGORY SUMMARY LIST

Sorted by: Impact Factor SORT AGAIN

Journals 1 - 20 (of 206) [1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10] Page 1 of 11

MARK ALL UPDATE MARKED LIST

Ranking is based on your journal and sort selections.

Mark	Rank	Abbreviated Journal Title (linked to journal information)	ISSN	JCR Data						*Eigenfactor*® Metrics	
				Total Cites	Impact Factor	5-Year Impact Factor	Immediacy Index	Articles	Cited Half-life	*Eigenfactor*® Score	*Article Influence*® Score
	1	ACAD MANAG LEARN EDU	1537-260X	938	4.800	4.053	0.769	26	5.1	0.00287	1.196
	2	LEARN INSTR	0959-4752	1954	3.732	3.727	1.220	59	6.8	0.00510	1.286
	3	REV EDUC RES	0034-6543	3367	3.169	5.464	0.353	17	>10.0	0.00625	2.725
	4	EDUC RESEARCHER	0013-189X	2479	2.931		0.909	22	>10.0	0.00504	
	5	READ RES QUART	0034-0553	1442	2.697	2.573	0.316	19	>10.0	0.00271	1.434
	6	J RES SCI TEACH	0022-4308	3306	2.639	2.920	0.200	50	>10.0	0.00527	1.096
	7	COMPUT EDUC	0360-1315	3557	2.621	2.970	0.498	229	3.5	0.00985	0.600
	8	AM EDUC RES J	0002-8312	2386	2.393	3.094	0.350	40	>10.0	0.00496	1.816
	9	EDUC RES REV-NETH	1747-938X	119	2.333		0.286	14	2.4	0.00065	
	10	J TEACH EDUC	0022-4871	966	2.292	2.226	0.467	30	8.7	0.00259	0.912

Author Level Metrics

h-index is most common

Author Level Metrics

The h-index is based on a list of publications ranked in descending order by number of times cited.

The value of *h* is equal to the number of papers (*n*) that have *n* or more citations

h-index

- Benefits longer careers

  Someone who has been working in the field for 30 years will have a higher index than someone with 10 years.

- Can be used to compare scholars at similar points in their career who publish in the same discipline.

Article Level Metrics

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Citation Counts - how often a particular *journal article* is being cited by other articles

Other possibilities (ie/ altmetrics - more later)

The Changes

Changes in the Publishing Environment

- increasing digital scholarly publications
- open access (OA)
- born digital
- reformatted digitally

Impact of Open Access (OA)

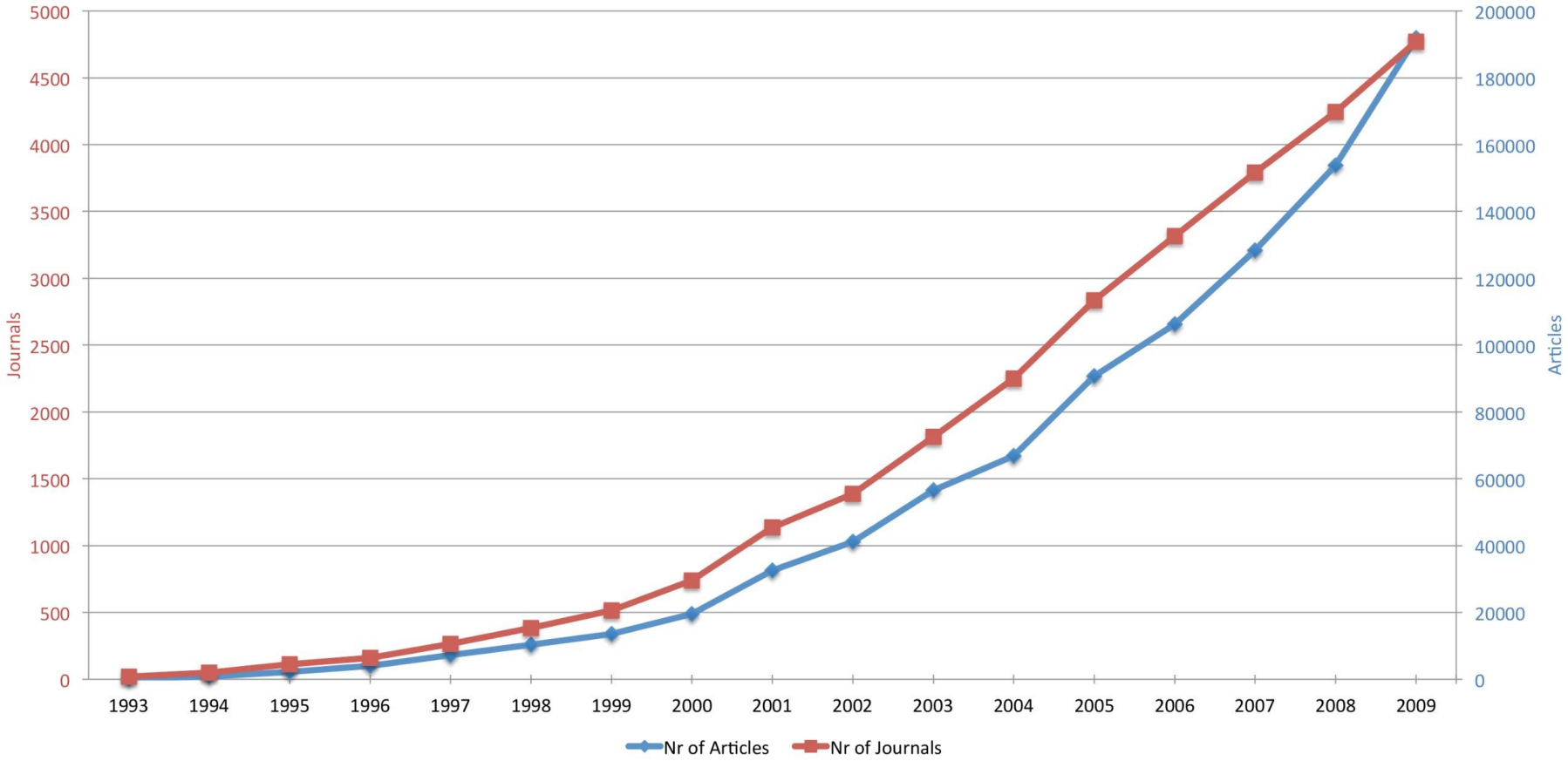
- global
- all disciplines, all formats
- different versions: preprints, postprints, final
- different locations: repositories, websites
- new modes of publishing, evaluation and information dissemination

Open Access Journals & Books

DOAJ DIRECTORY OF OPEN ACCESS JOURNALS

doab directory of open access books

Open Access Articles, Journals



Laakso M, Welling P, Bukvova H, Nyman L, Bjo¨ rk B-C, et al. (2011) The Development of Open Access Journal Publishing from 1993 to 2009. PLoS ONE 6(6): e20961. doi:10.1371/journal.pone.0020961

Open Access Repository Growth

Registry of Open Access Repositories (ROAR)

- 3479 repositories
- growth of 2/day

Bielefeld Academic Search Engine (BASE)

- 40,000,000+ documents
- 19,000 documents per day growth

Author Identification Systems

- ORCID
- ResearcherID
- Names Project (JISC)
- Author Claim
- arXiv Author ID
- Google Scholar Profile

ORCID

Connecting Research and Researchers

FOR RESEARCHERS | FOR ORGANIZATIONS | ABOUT | HELP

DISTINGUISH YOURSELF IN THREE EASY STEPS

ORCID provides a persistent digital identifier that distinguishes you from every other researcher and, through integration in key research workflows such as manuscript and grant submission, supports automated linkages between you and your professional activities ensuring that your work is recognized. Find out more.

1 REGISTER

Get your unique ORCID identifier Register now! Registration takes 30 seconds.

2 ADD YOUR INFO

Enhance your ORCID record with your professional information and link to your other identifiers (such as Scopus or ResearcherID or LinkedIn).

3 USE YOUR ORCID ID

Include your ORCID identifier on your Webpage, when you submit publications, apply for grants, and in any research workflow to ensure you get credit for your work.

New Metrics - *Altmetrics*

"Altmetrics is the study and use of non-traditional scholarly impact measures that are based on activity in web-based environments."

www.ploscollections.org/altmetrics

Altmetrics - How Do They Work?

- emphasis at article level, not journal level
- data/metrics created and updated quickly
- crowdsourced

Altmetrics

The (Big) Players

- **PLoS ONE**
  www.plosone.org
- **Impact Story**
  http://impactstory.org
- **Altmetric**
  www.altmetric.com

PLoS ONE - Article Level Metrics

http://www.plosone.org/

Includes:

- Usage
- Citations
- PLoS notes, comments, rankings
- Blogs & Media
- Social networks

OPEN ACCESS PEER-REVIEWED

40,314	56	88	14
VIEWS	CITATIONS	ACADEMIC BOOKMARKS	SOCIAL SHARES

RESEARCH ARTICLE

Behavioural and Developmental Interventions for Autism Spectrum Disorder: A Clinical Systematic Review

Maria B. Ospina, Jennifer Krebs Seida, Brenda Clark, Mohammad Karkhaneh, Lisa Hartling, Lisa Tjosvold, Ben Vandermeer, Veronica Smith

Article Usage

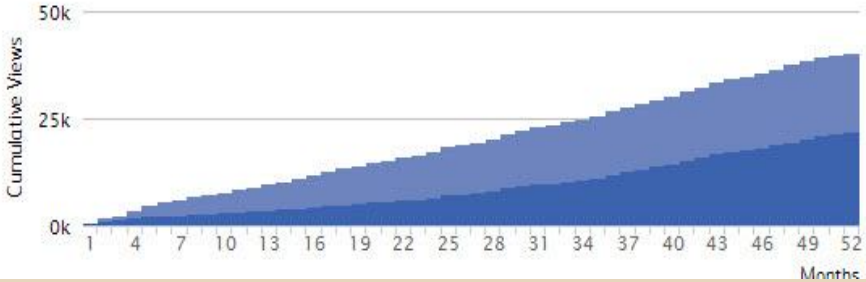
Total Article Views

40,314

Nov 18, 2008 (publication date) through Feb 20, 2013*

	HTML Page Views	PDF Downloads	XML Downloads	Totals
PLOS	17,864	3,966	52	21,882
PMC	12,187	6,245	n.a.	18,432
Totals	30,051	10,211	52	40,314

33.98% of article views led to PDF downloads



ADVERTISEMENT

Citations

SCOPUS	crossref	PMC	ISI Web of SCIENCE	Google scholar
56	36	11	42	Search

Social Networks

citeulike	facebook	MENDELEY	twitter
7	13	81	1

Blogs and Media Coverage

WIKIPEDIA	Google blogs
4	Search

PLOS Readers

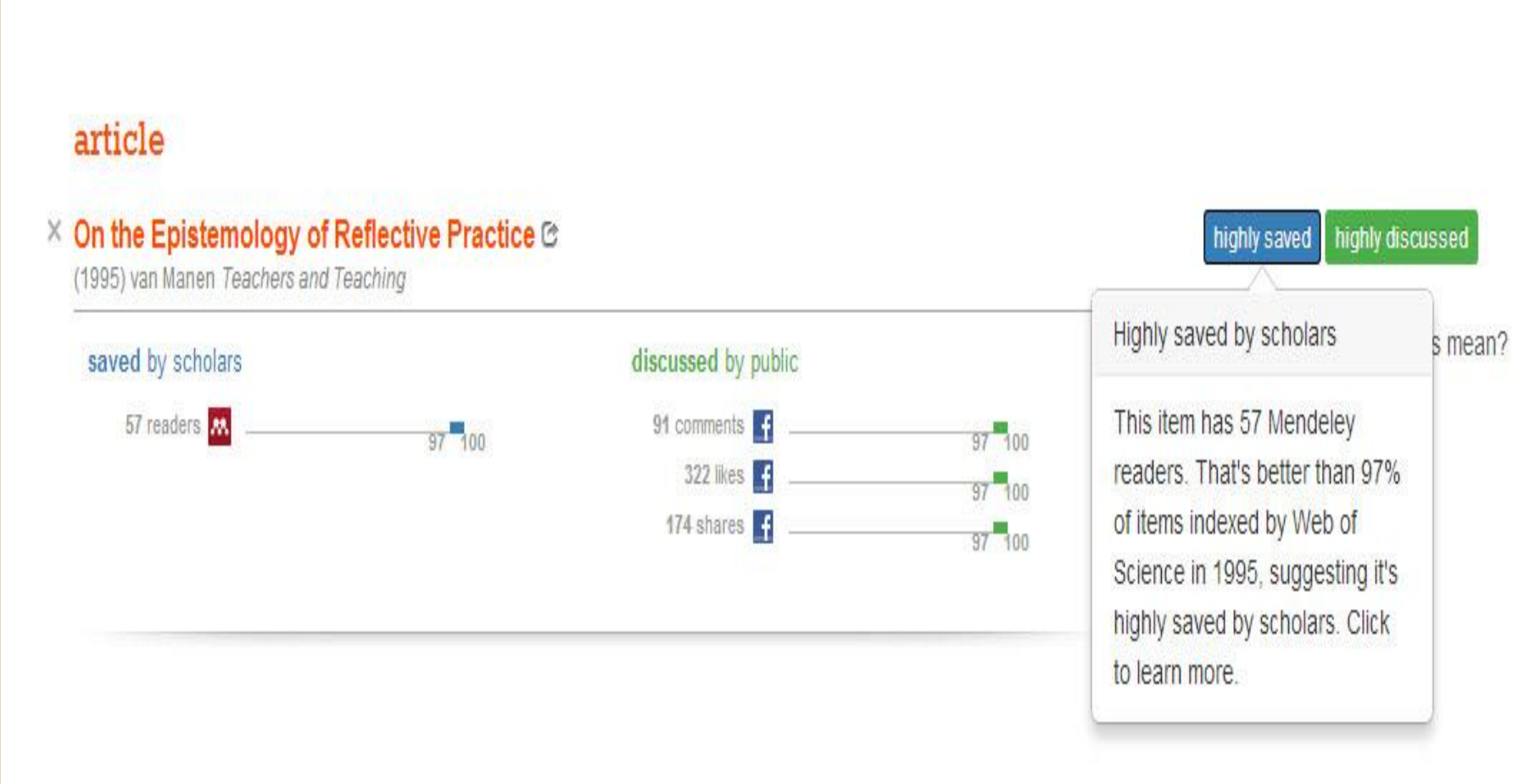
Comments
1

Download raw metrics data as XML
Metrics information and summary data for *PLOS ONE*
Questions or concerns about usage data? Please let us know.

ImpactStory

- tracks 'impact' of articles, datasets, blog posts, posters, etc
- aggregates data from public and scholarly services
- researchers can create collections of their articles
- can trace impact across multiple peer networks

ImpactStory



Altmetric.com

- monitors social media, newspapers, magazines weekly
- article-level metrics
- altmetric score based on:
  - volume
  - source
  - authors
- since 2011

Altmetric.com

Two different products:

- Explorer to embed in databases or journals
  - $$$
- Bookmarklet to embed in browser
  - free

1. Add bookmarklet to your bookmarks toolbar
2. Visit any paper
3. Get article level metrics with a single click

Altmetric.com

RSO - Research Services Office

rso.ualberta.ca

can provide some advice on how to locate citations and make suggestions for creative ways to determine impact

Other ways to make yourself findable

- deposit in institutional repositories (IR) eg/ U of A ERA - Education & Research Archive
- professional networks like LinkedIn, etc
- ???

Thank You!

Questions?

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