

Bibliometrics: Measuring the Impact of Your Publications

Jane Buggle
Deputy Librarian



Content

- Bibliometrics Defined
- Why Measure Impact?
- h-index
- Citation Tools
- Caveats
- Recommendations



Bibliometrics:

- “The branch of library science concerned with the application of mathematical and statistical analysis to bibliography; statistical analysis of books, articles, or other publications”
(OED Online)
- Measurement of the productivity of individuals, research groups, institutions, countries, etc.
- Quantitative measure which combines publication and citation data analysis
- Statistical indicator of performance
- Instrument for evaluating and benchmarking



Why Measure Impact?

- To see who is reading and building on your research
- To identify possible research collaborators
- To corroborate grant applications
- To report back to funding agencies, industry and the general public
- To benchmark against the performance of peers
- To gain job promotion/tenure
- To identify further research priorities
- To advance the institution's /country's rating in league tables



Bibliometrics and the Individual

Professor Dermot Diamond, Principal Investigator, National Centre for Sensor Research, Dublin City University, talks about the value and use of bibliometrics in the context of evaluating an individual's research impact

<https://www.youtube.com/watch?v=VeHdJLtmsFI>



h-index

- Introduced by Jorge E. Hirsch in 2005

“I propose the index h , defined as the number of papers with citation number higher or equal to h , as a useful index to characterize the scientific output of a researcher”

“ 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” (Hirsch, 2005)

Calculating the h-index

No. Papers

1

2

3

4

5

6

7

8

No. Citations

33

30

20

15

7

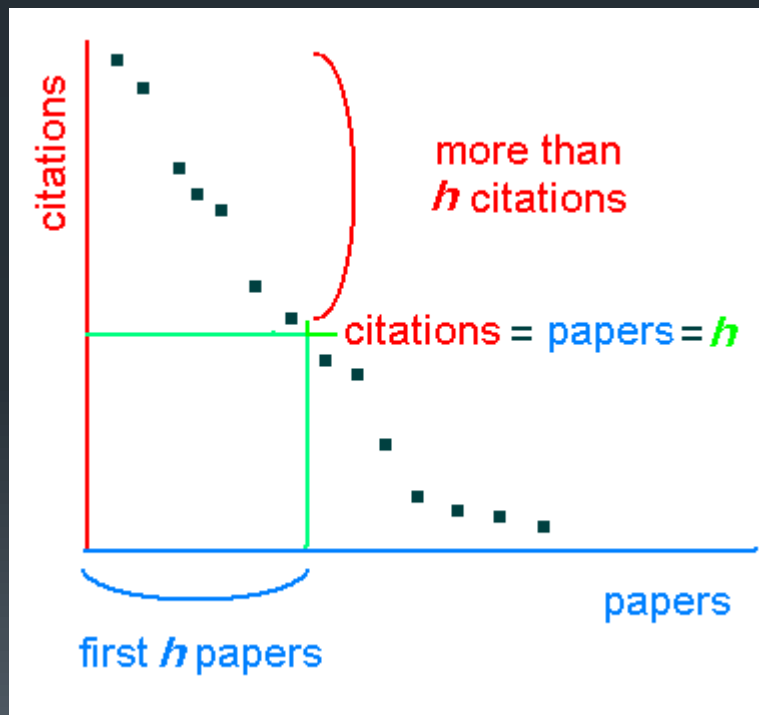
6

5

4

h-index = 6

h-index





h-index: Limitations

- Professor Padraig Cunningham from UCD's School of Computer Science and Information talks about some of the limitations of the h-index for early researchers:

<https://www.youtube.com/watch?v=8BSXWKBuHXU>



Citation Databases

- Thomson Reuters' ISI Web of Science
- Elsevier's Scopus
- Google Scholar

Strengths and Weaknesses

	Strengths	Weaknesses
Web of Science	<ul style="list-style-type: none">•Advanced citation searching and analysis features•Citation data available from 1900•Broad coverage of high impact journals	<ul style="list-style-type: none">•Conference papers, theses, books and book chapters are excluded•Limited coverage of non-English publications

Strengths and Weaknesses

	Strengths	Weaknesses
Scopus	<ul style="list-style-type: none">•Advanced citation searching and analysis features•Better coverage of Social Science titles•Includes conference proceedings	<ul style="list-style-type: none">•Books, book chapters and theses excluded•Citation data from papers published since 1996 only

Strengths and Weaknesses

	Strengths	Weaknesses
Google Scholar	<ul style="list-style-type: none">•Free•Covers non-English language titles•Covers all types of publications including books and conference proceedings	<ul style="list-style-type: none">•No quality control – lots of errors in data•Does not cover all journals•Coverage uneven across disciplines•Difficult to deal with name variants



How to set up your Google Scholar Citation Profile

<https://www.youtube.com/watch?v=PVioeKCAdEs>



Kevin Bryson

Lecturer in Bioinformatics & Systems Biology, University College London

[Genome Analysis](#) - [Protein Structure](#) - [Biological System Modelling](#).

Verified email at cs.ucl.ac.uk

[Homepage](#)

Citation indices

	All	Since 2009
Citations	4406	2426
h-index	18	14
i10-index	21	18

Citations to my articles



Show: 20 ▾ 1-20 Next >

Title / Author	Cited by	Year
The PSIPRED protein structure prediction server LJ McGuffin, K Bryson, DT Jones Bioinformatics 16 (4), 404-405	2096	2000
Protein structure prediction servers at University College London K Bryson, LJ McGuffin, RL Marsden, JJ Ward, JS Sodhi, DT Jones Nucleic acids research 33 (suppl 2), W36-W38	674	2005
The DISOPRED server for the prediction of protein disorder JJ Ward, LJ McGuffin, K Bryson, BF Buxton, DT Jones Bioinformatics 20 (13), 2138-2139	342	2004
Protein annotation and modelling servers at University College London DWA Buchan, SM Ward, AE Lobley, TCO Nugent, K Bryson, DT Jones Nucleic acids research 38 (suppl 2), W563-W568	221	2010
The complete genome sequence of Lactobacillus bulgaricus reveals extensive and ongoing reductive evolution M Van de Guchte, S Penaud, C Grimaldi, V Barbe, K Bryson, P Nicolas, ...	209	2006

Google

Search Author

My Citations

Follow this au

Follow new ar
Follow new cit

Co-authors

No co-authors

Your profile is private and won't appear in search results. (Make my profile public - [Preview public version](#))



Pauline Cummins Edit

Unknown affiliation Edit
 Unknown interests Edit
 No verified email Edit
 My profile is private Edit [Add homepage](#)

[Change photo](#)



My Citations

Citation indices		
	All	Since 2009
Citations	44	43
h-index	4	4
i10-index	2	2



Add co-author
 Christopher A...
[View all co-au...](#)

Select: [All](#), [None](#) Actions ▼ 1-11

Title / Author	Cited by	Year
<input type="checkbox"/> f2f and cyberbullying among children in Northern Ireland: Data from the Kids Life and Times Surveys C McGuckin, P Cummins, CA Lewis Association for the Advancement of Psychology and Education (AAPE)	16	2010
<input type="checkbox"/> BULLY/VICTIM PROBLEMS IN NORTHERN IRELAND'S SCHOOLS: DATA FROM THE 2003 YOUNG PERSONS' BEHAVIOR AND ATTITUDE SURVEY. CM Guckin, PK Cummins, CA Lewis Adolescence 44 (174)	15	2009
<input type="checkbox"/> Experiences of school bullying, psychological well-being and stress in Northern Ireland: Findings from the Young Life and Times survey, 2005 C Mc Guckin, PK Cummins, CA Lewis Research in Education 83 (1), 54-66	7	2010

Co-authors

No co-authors

Name

Email

Inviting co-...

[The stress and trauma of school victimization in Ireland: A retrospective](#)



Publish or Perish

Devised by Harzing, Publish or Perish is a software program that retrieves and analyse academic citations. It uses Google Scholar to obtain the raw citations, then analyses these and presents metrics:

- Total number of papers and total number of citations
- Average citations per paper, citations per author, papers per author, and citations per year
- h-index
- Egghe's g-index
- The average annual increase in the individual h-index
- The age-weighted citation rate
- An analysis of the number of authors per paper.

Author impact analysis - Perform a citation analysis for one or more authors

Author impact

Journal impact

General citations

Multi-query center

Web browser

Check for updates

Help contents

What's new?

2-Minute intro

PoP FAQ

PoP web site

PoP book

Author's name:

Exclude these names:

Year of publication between: and:

Data source:

Results

Papers:	218	Papers/author:	157.72	h-index:	39	"a harzing": all
Citations:	6326	Cites/year:	332.95	g-index:	77	Query date: 2013-12-29
Years:	19	Cites/auth/year:	253.03	hc-index:	30	Papers: 218
Cites/paper:	29.02	hI,annual:	1.68	hI,norm:	32	Citations: 6326
						Years: 19

Cites	Per year	Authors	Title	Year	Publication
337	24.07	AW Harzing	An empirical analysis and extension of the Bartlett and Ghoshal typology of multinati...	2000	Journal of International Business Studies
323	26.92	AW Harzing	Acquisitions versus greenfield investments: International strategy and management ...	2002	Strategic management journal
309	20.60	AW Harzing	Managing the multinationals: An international study of control mechanisms	1999	
282	56.40	NJ Adler, AW Harzing	When knowledge wins: Transcending the sense and nonsense of academic rankings	2009	Academy of Management Learning & ...
278	14.63	AWK Harzing	The persistent myth of high expatriate failure rates	1995	International Journal of Human Resource ...
264	37.71	AW Harzing, R Van der Wal	Google Scholar: the democratization of citation analysis	2007	Ethics in science and environmental politics
261	15.35	AW Harzing	Response rates in international mail surveys: results of a 22-country study	1997	International Business Review
236	19.67	AW Harzing	Of bears, bumble-bees, and spiders: The role of expatriates in controlling foreign su...	2002	Journal of World Business
232	21.09	AW Harzing, A Sorge	The relative impact of country of origin and universal contingencies on internationaliz...	2003	Organization Studies
177	13.62	AW Harzing	Who's in charge? An empirical study of executive staffing practices in foreign subsidi...	2001	Human Resource Management
152	19.00	AW Harzing	Response Styles in Cross-national Survey Research A 26-country Study	2006	International Journal of Cross Cultural ...
149	49.67	AW Harzing	The Publish Or Perish Book: A Guide to the Software	2011	
148	13.45	AJ Feely, AW Harzing	Language management in multinational companies	2003	Cross Cultural Management: An ...
137	9.79	AW Harzing	Cross-national industrial mail surveys: why do response rates differ between countri...	2000	Industrial Marketing Management
122	10.17	AW Harzing	Are our referencing errors undermining our scholarship and credibility? The case of e...	2002	Journal of Organizational Behavior
121	11.00	AW Harzing	The role of culture in entry-mode studies: from neglect to myopia?	2003	Advances in international management
121	12.10	AW Harzing, J Van Ruyseveldt	International human resource management	2004	
121	24.20	AW Harzing, R van der Wal	A Google Scholar h-index for journals: An alternative metric to measure journal impa...	2009	Journal of the American Society ...
117	19.50	AW Harzing, AJ Feely	The language barrier and its implications for HQ-subsidiary relationships	2008	Cross Cultural Management: An ...
108	8.31	AW Harzing	An analysis of the functions of international transfer of managers in MNCs	2001	Employee Relations
105	21.00	N Noorderhaven, AW Harzing	Knowledge-sharing and social interaction within MNEs	2009	Journal of International ...
103	14.71	M Pudelko, AW Harzing	Country-of-origin, localization, or dominance effect? An empirical investigation of H...	2007	Human Resource Management
102	25.50	AW Harzing, A Pinnington	International human resource management	2010	
96	9.60	J Barry Hocking, M Brown...	A knowledge transfer perspective of strategic assignment purposes and their path-d...	2004	The International Journal of ...
90	12.86	J Mingers, AW Harzing	Ranking journals in business and management: a statistical analysis of the Harzing d...	2007	European Journal of Information ...



Altmetrics

- The growth of social media and collaborative tools have enabled scholars to disseminate, discuss and manage research information in new ways
- This activity can be measured and can provide additional information about the usage and reach of scholarly output
- https://www.youtube.com/watch?v=_A1sg7AyrhM



Bibliometrics - Caveats

Professor Ray O'Neill, Vice President for Research, National University of Ireland Maynooth highlights some of the limitations of using bibliometric data

<https://www.youtube.com/watch?v=1OLvh1VMgN8>



Suggestions

- Set up your Google Scholar Profile and keep it up to date
- Consider depositing your scholarly work in eSource, the DBS institutional repository - all content is automatically discoverable by Google Scholar
- Never mix metrics from different sources
- Check what metrics are required for funding applications
- It is likely that the QQI will soon start to look for institutional/departmental metrics in PRs and validations
- The development of a coordinated DBS Research Strategy which assimilates developments in the research area in the context of our institution.

Bibliography:

- Bar-Ilan, Judit (2008). Which h-index? – A comparison of WoS, Scopus and Google Scholar. *Scientometrics*, Vol. 74, No. 2, 257-271 <http://sci2s.ugr.es/hindex/pdf/Bar-Ilan2008.pdf>, access 7/11/2013
- Harzing, Anne-Wil (2008) Google Scholar – a new data source for citation analysis http://www.harzing.com/pop_gs.htm, accessed 7/11/2013
- HEA (2014). Higher Education System Performance Framework 2014-2016 http://www.hea.ie/sites/default/files/1_revised_system_performance_framework_2014-16.pdf, accessed 21/5/2014
- Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National academy of Sciences of the United States of America*, 102(46), 16569-16572, <http://www.pnas.org/content/102/46/16569.full>, accessed 8/5/2014
- Ireland, T., MacDonald, K., & Stirling, P. The H-Index: What Is It, How Do We Determine It, and How Can We Keep Up With It? <http://nfgwin.uni-duesseldorf.de/sites/default/files/Ireland.pdf>, accessed 8/5/2014
- Oxford Dictionaries <http://www.oxforddictionaries.com/definition/english/bibliometrics?q=bibliometrics>, accessed 13/5/2014

- **This guide includes material from [MyRI: Measuring your Research Impact](#) and is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License](#).