



Facilitate Open Science Training for European Research



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# Metrics



<https://www.flickr.com/photos/lwr/32563690/>

# Quiz - What's your field of expertise?

- a) Humanities
- b) Social Sciences
- c) Science
- d) still thinking...



# What tools are available to us to measure the quality of a paper?

## Established Metrics:

- 1) Impact factor
- 2) Citation Analysis
- 3) Hirsh Index

## Emerging Metrics

- 1) Article Level Metrics (ALMs) / Altmetrics

# Research Landscape



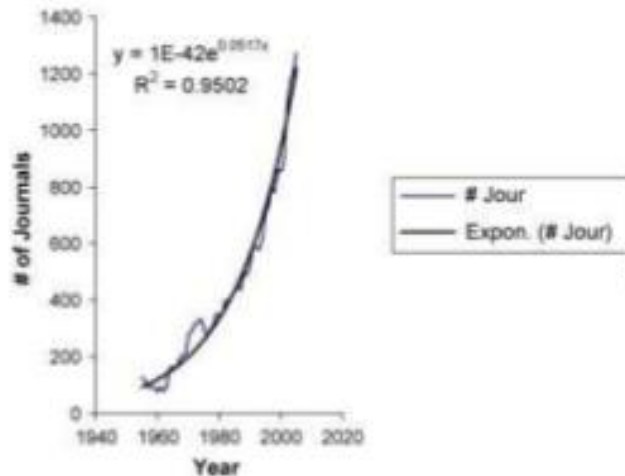
Books are the main communication channel for scientists

Creation of the two first scientific journals

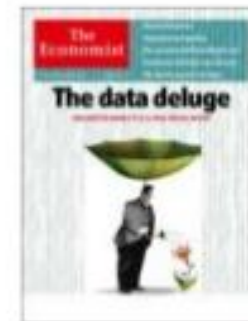
1665



Exponential increment of scientific journals



1950



2013

# Research Impact



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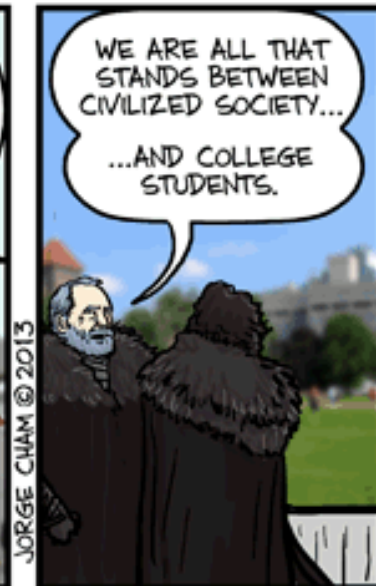


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>>originally published 4/8/2013



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previous



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first



next



jump



# Citation Analysis

- Scholarly Communication  
(provide peer recognition)
- Scientific Evaluation
- LIVE: Scopus / Web of Science



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# Quiz - Citation Analysis

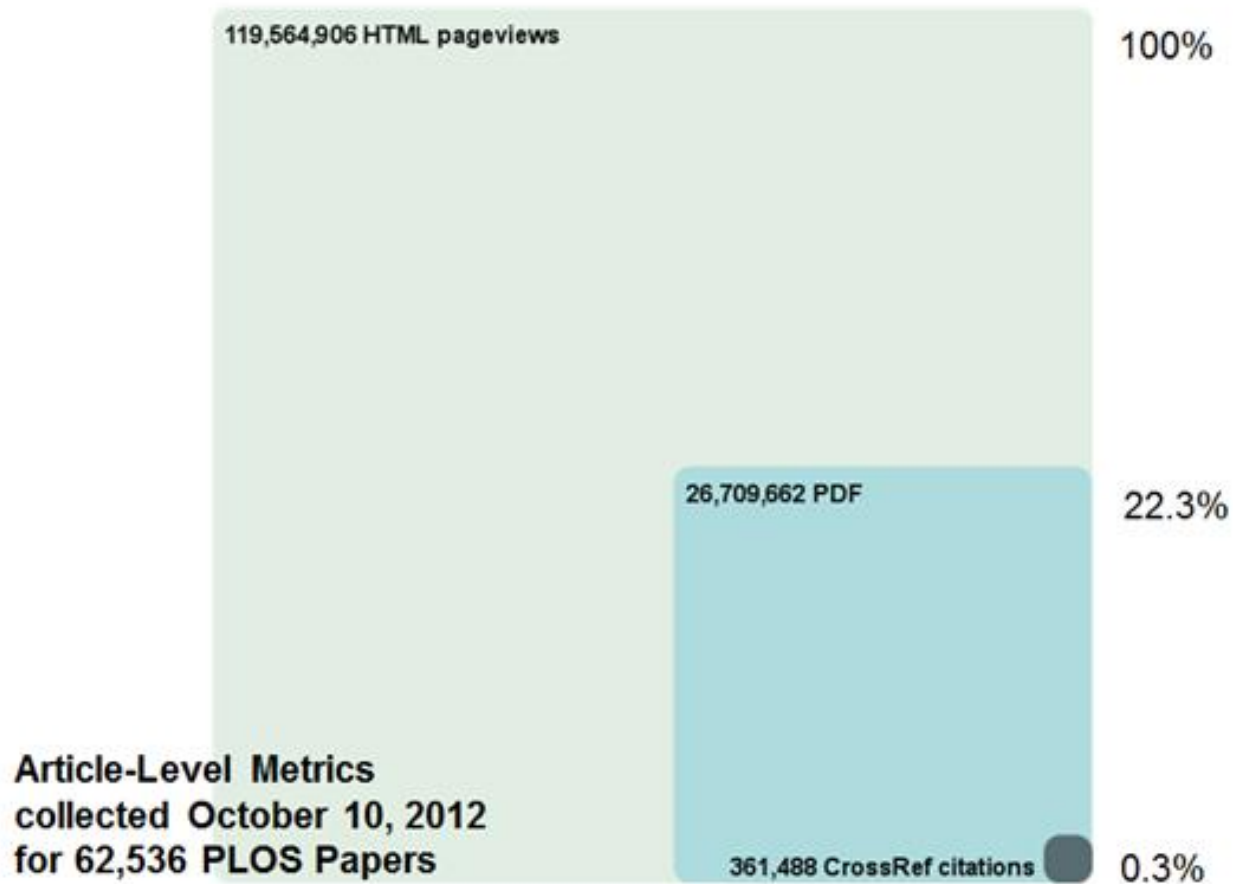
Can you estimate how many papers in academic journals are never cited?

- 47%
- 65%
- 90%





# PLoS example:



Source: Cave 2012

# Citation Analysis (Reject errors)

September 29, 1955

Dr. Solomon A. Berson  
Radioisotope Service  
Veterans Administration Hospital  
130 West Kingsbridge Road  
Bronx 68, New York

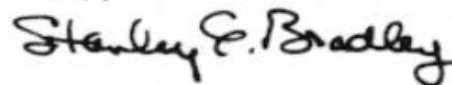
Dear Dr. Berson:

I regret that the revision of your paper entitled "Insulin- $I^{131}$  Metabolism in Human Subjects: Demonstration of Insulin Transporting Antibody in the Circulation of Insulin Treated Subjects" is not acceptable for publication in THE JOURNAL OF CLINICAL INVESTIGATION. -----

----- The second major criticism relates to the dogmatic conclusions set forth which are not warranted by the data. The experts in this field have been particularly emphatic in rejecting your positive statement that the "conclusion that the globulin responsible for insulin binding is an acquired antibody appears to be inescapable". They believe that you have not demonstrated an antigen-antibody reaction on the basis of adequate criteria, nor that you have definitely proved that a globulin is responsible for insulin binding, nor that insulin is an antigen. The data you present are indeed suggestive but any more positive claim seems unjustifiable at present.

-----

Sincerely,



Stanley E. Bradley, M.D.  
Editor-in-Chief

# Citation Analysis (Accept errors)

Lancet formally retracts Wakesfield paper [Grant Jacobs](#) Feb 03

10 Comments



Heading the home page of medical journal *The Lancet* is an announcement of the formal retraction of the Wakefield paper that in part sparked the MMR vaccination scare in the UK and elsewhere. (I write 'in part' as other factors, such as Wakesfield's public addresses and uncritical media coverage have their role in the saga.)

The retraction statement reads:

**RETRACT**

Following the judgment of the UK General Medical Council's Fitness to Practise Panel on Jan 28, 2010, it has become clear that several elements of the 19 Wakefield et al are incorrect, contrary to the findings of an earlier investigation. In the claims in the original paper that children were "consecutively referred investigations were "approved" by the local ethics committee have been proven. Therefore we fully retract this paper from the published [record.]

Scibling Peter Giffin's [article](#) from earlier this week reports on the findings of the UK's Council with respect to Wakesfield's work. I've earlier written about autism and it's [vaccination](#).

**Addendum:** Also worth reading for some wider context are any number of articles about a hopes of a "treatment", like this [article](#) by Liane Carter in the *New York Times*.

[sciblogs.co.nz/code-for-life/2010/02/03/lancet-formally-retracts-wakesfield-paper](http://sciblogs.co.nz/code-for-life/2010/02/03/lancet-formally-retracts-wakesfield-paper),

## THE LANCET

### SCiGen - An Automatic CS Paper Generator

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#### About

SCiGen is a program that generates random Computer Science research papers, including graphs, figures, and citations. It uses a hand-written **context-free grammar** to form all elements of the papers. Our aim here is to maximize amusement, rather than coherence.

One useful purpose for such a program is to auto-generate submissions to conferences that you suspect might have very low submission standards. A prime example, which you may recognize from spam in your inbox, is SCI/IIIS and its dozens of co-located conferences (check out the very broad conference description on the [WMSCI 2005](#) website). There's also a list of [known bogus conferences](#). Using SCiGen to generate submissions for conferences like this gives us pleasure to no end. In fact, one of our papers was accepted to SCI 2005! See [Examples](#) for more details.

We went to WMSCI 2005. Check out the [talks and video](#). You can find more details in our [blog](#).

#### Generate a Random Paper

Want to generate a random CS paper of your own? Type in some optional author names below, and click "Generate".

Author 1:   
Author 2:   
Author 3:   
Author 4:   
Author 5:

SCiGen currently supports Latin-1 characters, but not the full Unicode character set.

#### Examples

Here are two papers we submitted to [WMSCI 2005](#):

- [Rooter: A Methodology for the Typical Unification of Access Points and Redundancy \(PS, PDF\)](#)  
Jeremy Stribling, Daniel Aguayo and Maxwell Krohn



# Journal Impact Factor



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to a friend!



list all  
comics



print this  
comic

>>originally published 12/8/2008

## Your (real) Impact Factor

$$\text{Impact Factor (corrected)} = \frac{
 \begin{array}{l}
 \# \text{ times your work is cited} \\
 - \# \text{ citations that actually trash your work} \\
 - \# \text{ times you cited yourself (nice try)} \\
 - \# \text{ times you were cited just to pad the introduction section} \\
 - \# \text{ citations the editor pressured the author to include to increase the journal's impact factor}
 \end{array}
 }{
 \begin{array}{l}
 \# \text{ original articles you've written} \\
 + \# \text{ articles you were included in out of pity or politics} \\
 + \# \text{ not-so-original articles you've } \text{~~written~~\text{ copied and pasted}
 \end{array}
 }$$

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Journal: TRENDS IN MOLECULAR MEDICINE

Mark	Journal Title	ISSN	Total Cites	Impact Factor	5-Year Impact Factor	Immediacy Index	Citable Items	Cited Half-life
<input type="checkbox"/>	<a href="#">TRENDS MOL MED</a>	1471-4914	6659	<a href="#">10.110</a>	<a href="#">10.292</a>	<a href="#">1.527</a>	74	<a href="#">5.6</a>

[Cited Journal](#) [Citing Journal](#) [Source Data](#) [Journal Self Cites](#)

Journal Information

**Full Journal Title:** TRENDS IN MOLECULAR MEDICINE  
**ISO Abbrev. Title:** Trends Mol. Med  
**JCR Abbrev. Title:** TRENDS MOL MED  
**ISSN:** 1471-4914  
**Issues/Year:** 12  
**Language:** ENGLISH  
**Journal Country/Territory:** ENGLAND  
**Publisher:** ELSEVIER SCI LTD  
**Publisher Address:** THE BOULEVARD, LANGFORD LANE,  
 KIDLINGTON, OXFORD OX5 1GB,  
 OXON, ENGLAND  
**Subject Categories:** BIOCHEMISTRY & MOLECULAR

**Eigenfactor<sup>®</sup> Metrics**  
**Eigenfactor<sup>®</sup> Score**  
 0.02090  
**Article Influence<sup>®</sup> Score**  
 3.718

Journal: AMERICAN JOURNAL OF BIOETHICS

Mark	Journal Title	ISSN	Total Cites	Impact Factor	5-Year Impact Factor	Immediacy Index	Citable Items	Cited Half-life	Citing Half-life
<input type="checkbox"/>	<a href="#">AM J BIOETHICS</a>	1526-5161	1450	<a href="#">2.452</a>	<a href="#">3.194</a>	<a href="#">1.694</a>	193	<a href="#">4.2</a>	<a href="#">5.3</a>

[Cited Journal](#) [Citing Journal](#) [Source Data](#) [Journal Self Cites](#)

Journal Information

**Full Journal Title:** AMERICAN JOURNAL OF BIOETHICS  
**ISO Abbrev. Title:** Am. J. Bioeth.  
**JCR Abbrev. Title:** AM J BIOETHICS  
**ISSN:** 1526-5161  
**Issues/Year:** 12  
**Language:** ENGLISH  
**Journal Country/Territory:** UNITED STATES

**Eigenfactor<sup>®</sup> Metrics**  
**Eigenfactor<sup>®</sup> Score**  
 0.00397  
**Article Influence<sup>®</sup> Score**  
 1.212



# Journal Impact Factor - Subject Categories

## Molecular Biology

Rank	Abbreviated Journal Title (linked to journal information)	ISSN	JCR Data (j)					Articles	Cited Half-life
			Total Cites	Impact Factor	5-Year Impact Factor	Immediacy Index			
1	<a href="#">CELL</a>	0092-8674	191226	33.116	35.020	6.750	432	8.4	
2	<a href="#">NAT MED</a>	1078-8956	60002	28.054	26.501	5.817	175	7.8	
3	<a href="#">ANNU REV BIOCHEM</a>	0066-4154	20070	26.534	32.970	3.250	28	>10.0	
4	<a href="#">MOL PSYCHIATR</a>	1359-4184	13902	15.147	14.196	3.500	132	5.4	
5	<a href="#">MOL CELL</a>	1097-2765	52033	14.464	15.324	3.819	309	6.5	
6	<a href="#">MOL BIOL EVOL</a>	0737-4038	34971	14.308	10.494	1.824	238	6.6	
7	<a href="#">MOL SYST BIOL</a>	1744-4292	7195	14.099	12.292	2.405	74	4.1	
8	<a href="#">GENOME RES</a>	1088-9051	30995	13.852	14.927	2.938	192	5.7	
9	<a href="#">TRENDS BIOCHEM SCI</a>	0968-0004	15910	13.522	12.197	1.926	68	>10.0	
10	<a href="#">NAT CHEM BIOL</a>	1552-4450	12495	13.217	15.059	3.448	116	4.4	
11	<a href="#">PROG LIPID RES</a>	0163-7827	4382	12.963	12.336	1.659	41	7.8	
12	<a href="#">MOL INTERV</a>	1534-0384	1073	12.143	7.360		0	7.7	
13	<a href="#">PLOS BIOL</a>	1545-7885	24324	11.771	12.807	1.706	201	5.9	
14	<a href="#">NAT STRUCT MOL BIOL</a>	1545-9993	25691	11.633	12.338	3.989	182	6.2	
15	<a href="#">EMBO J</a>	0261-4189	76176	10.748	10.168	2.951	225	>10.0	
16	<a href="#">NAT PROD REP</a>	0265-0568	7158	10.715	10.353	3.719	57	6.1	
17	<a href="#">MOL ASPECTS MED</a>	0098-2007	3486	10.302	11.214	2.422	83	5.4	
18	<a href="#">TRENDS MOL MED</a>	1471-4914	6659	10.110	10.292	1.527	74	5.6	

## History and Philosophy of Science

Rank	Abbreviated Journal Title (linked to journal information)	ISSN	JCR Data (j)					Articles
			Total Cites	Impact Factor	5-Year Impact Factor	Immediacy Index		
1	<a href="#">AM J BIOETHICS</a>	1526-5161	1450	2.452	3.194	1.694	193	
2	<a href="#">SOC STUD SCI</a>	0306-3127	1971	2.151	2.466	0.810	42	
3	<a href="#">SCI ENG ETHICS</a>	1353-3452	650	1.516	1.377	0.209	91	
4	<a href="#">AGR HUM VALUES</a>	0889-048X	970	1.359	1.926	0.326	43	
5	<a href="#">J AGR ENVIRON ETHIC</a>	1187-7863	586	1.250	1.477	0.117	60	
6	<a href="#">BRIT J PHILOS SCI</a>	0007-0882	995	1.017	1.519	0.143	35	
7	<a href="#">BIOL PHILOS</a>	0169-3867	821	0.907	1.090	0.358	53	
8	<a href="#">STUD HIST PHILOS M P</a>	1355-2198	355	0.902	0.792	0.170	47	
9	<a href="#">OSIRIS</a>	0369-7827	283	0.875	0.621	0.200	15	
10	<a href="#">ISIS</a>	0021-1753	1000	0.818	1.297	0.030	33	
11	<a href="#">EUR PHYS J H</a>	2102-6459	70	0.778	1.143	0.208	24	
12	<a href="#">SCI EDUC-NETHERLANDS</a>	0926-7220	680	0.718		0.046	108	
13	<a href="#">HYLE</a>	1433-5158	91	0.700	0.727	0.429	7	
14	<a href="#">J HIST MED ALL SCI</a>	0022-5045	336	0.686	0.775	0.235	17	
15	<a href="#">PHILOS SCI</a>	0031-8248	2142	0.667	1.061	0.156	77	
16	<a href="#">SYNTHESE</a>	0039-7857	1963	0.637	0.815	0.083	217	
17	<a href="#">J HIST BIOL</a>	0022-5010	404	0.622	0.757	0.095	21	
18	<a href="#">STUD HIST PHILOS SCI</a>	0039-2001	380	0.564	0.508	0.139	72	

# Quiz -what is the H-Index (Hirsh Index)?

- a) the equivalent  $N$  such that you have  $N$  papers each of which have at least  $N$  citations
- b) the largest  $N$  such that you have  $N$  papers each of which have at least  $N$  citations
- C) the largest  $N$  such that you  $N$  papers each of which have more than  $N$  citations



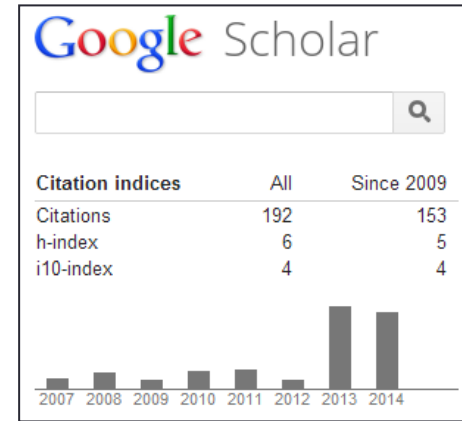
# H-Index

- Bob is a senior researcher in Microscopy. He's published prolifically over his career: 127 papers, 98 of which never got cited, 19 no more than 5 times, while the remaining 8 got cited more than 8 times  
→ he's h-index is of **8**
- Early career researcher Colin (also in the field of Microscopy) has published two papers only but they were both outstanding and attracted many citations (72 and 45 respectively over the last 12 months)  
• -> he's h-index is of **2**





# Tools to retrieve h-index



**Scopus**

Search | Alerts | My list | Settings

Hjellbrekke, Johs  
 Universitetet i Bergen, Bergen, Norway  
 Author ID: 10641822900

Documents: 5  
 Citations: 53 total citations by 47 documents  
 h Index: 3 The h Index considers Scopus articles published after 1995.  
 Co-authors: 13  
 Subject area: Social Sciences, Arts and Humanities

View Author Evaluation  
 View citation overview  
 View h-Graph

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Harzing's Publish or Perish

File Edit View Tools Help

General citation search - Perform a general citation search

Author(s): j hjellbrekke

Publication:

All of the words:

Any of the words:

None of the words:

The phrase:

Year of publication between: 0 and: 0  Title words only

Data source: Google Scholar

**Results**

Papers:	62	Papers/author:	21.67	h-index:	11	j hjellbrekke: all Query date: 2014- Papers: 62 Citations: 515 Years: 36
Citations:	515	Cites/year:	14.31	g-index:	20	
Years:	36	Cites/auth/year:	4.20	hc-index:	9	
Cites/paper:	8.31	hI,annual:	0.14	hI,norm:	5	

WEB OF SCIENCE™

Back to Search

Citation Report: 6  
 (from Web of Science Core Collection)

Results found: 6

Sum of the Times Cited [?]: 44

Sum of Times Cited without self-citations [?]: 43

Citing Articles [?]: 38

Citing Articles without self-citations [?]: 37

Average Citations per Item [?]: 7.33

h-index [?]: 3

Scholarometer

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J HJELLBREKKE

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Max Year: 2013 Show 25 entries

Min Year: 0

Max Cited: 80

Min Cited: 0

Times Cited	Authors	Title/Links	Year
80	N Cunningham, M Taylor, Y Li, J Hjellbrekke, ...	A new model of social class? Findings from the BBC's Great British Class Survey experiment	2013
39	J Hjellbrekke	Infering i korrespondanseanalyse	1999

Number of Articles: 23  
 Number of Citations: 205  
 h: 6  
 Scholarometer %ile: 31.78

discipline	votes	%	%ile
social sciences, interdisciplinary	1	0.42	31.23

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# Alternatives to the h-index:

- G-index
- individual h-index
- universal h-index
- H10 index
- M-index

*Are you*  

---

**MORE**  
*than your*  
**H-INDEX?**  

---

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# ORCID (Open Researcher and Contributor Identifier)

- How do you distinguish between:
  - A. Smith, Anna Smith, and Anna L. Smith
- ORCID is a **unique author ID** that distinguishes your work online from that of researchers with the same or similar names. It is a tool that allow researchers to link their research works with their names and thus gain full credit for their own work



FOR RESEARCHERS

FOR ORGANIZATIONS

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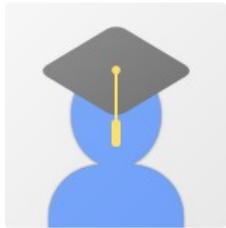
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Registration takes 30 seconds.

**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).

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[www.orcid.org](http://www.orcid.org)

# Google Scholar Citations



**Erin C. McKiernan**



Researcher in Medical Sciences, National Institute of Public Health of Mexico

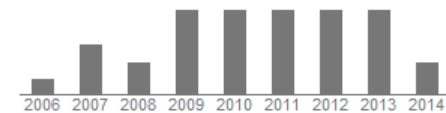
physiology, epidemiology, neuroscience, mathematical modeling

Verified email at insp.mx - [Homepage](#)

Title	Cited by	Year
<p><a href="#">A Brunswikian evolutionary developmental theory of preparedness and plasticity</a></p> <p>AJ Figueredo, KR Hammond, EC McKiernan Intelligence 34 (2), 211-227</p>	26	2006
<p><a href="#">Relating ion channel expression, bifurcation structure, and diverse firing patterns in a model of an identified motor neuron</a></p> <p>MA Herrera-Valdez, EC McKiernan, SD Berger, S Ryglewski, C Duch, ... Journal of computational neuroscience 34 (2), 211-229</p>	7	2013
<p><a href="#">Mitigating effects of vaccination on influenza outbreaks given constraints in stockpile size and daily administration capacity</a></p> <p>M Cruz-Aponte, EC McKiernan, MA Herrera-Valdez BMC infectious diseases 11 (1), 207</p>	2	2011
<p><a href="#">Biophysical modeling of excitability and membrane integration at the single cell and network levels</a></p> <p>MA Herrera-Valdez, A Smith, M Cruz-Aponte, EC McKiernan BMC Neuroscience 12 (Suppl 1), P218</p>	2	2011
<p><a href="#">The role of specific voltage-activated and calcium-activated potassium currents in shaping motor neuron firing output during rhythmic motor activity</a></p> <p>EC McKiernan The University of Arizona.</p>	2	2010
<p><a href="#">From spinal cord to hippocampus: links between bifurcation structure, ion channel expression, and firing patterns in a variety of neuron types</a></p> <p>EC McKiernan, MAH Valdez BMC Neuroscience 13 (Suppl 1), P121</p>	1	2012
<p><a href="#">Temperature dependent transitions in excitability predicted by an electrodiffusion model of membrane potential</a></p> <p>JR Melendez-Alvarez, EC McKiernan, MAH Valdez</p>	1	2012

Google Scholar

Citation indices	All	Since 2009
Citations	43	35
h-index	2	2
i10-index	1	1



Co-authors [View all...](#)

[Maytee Cruz-Aponte](#)

[Sharon Crook](#)

[Marco Arieli Herrera-Valdez, PhD/PhD](#)



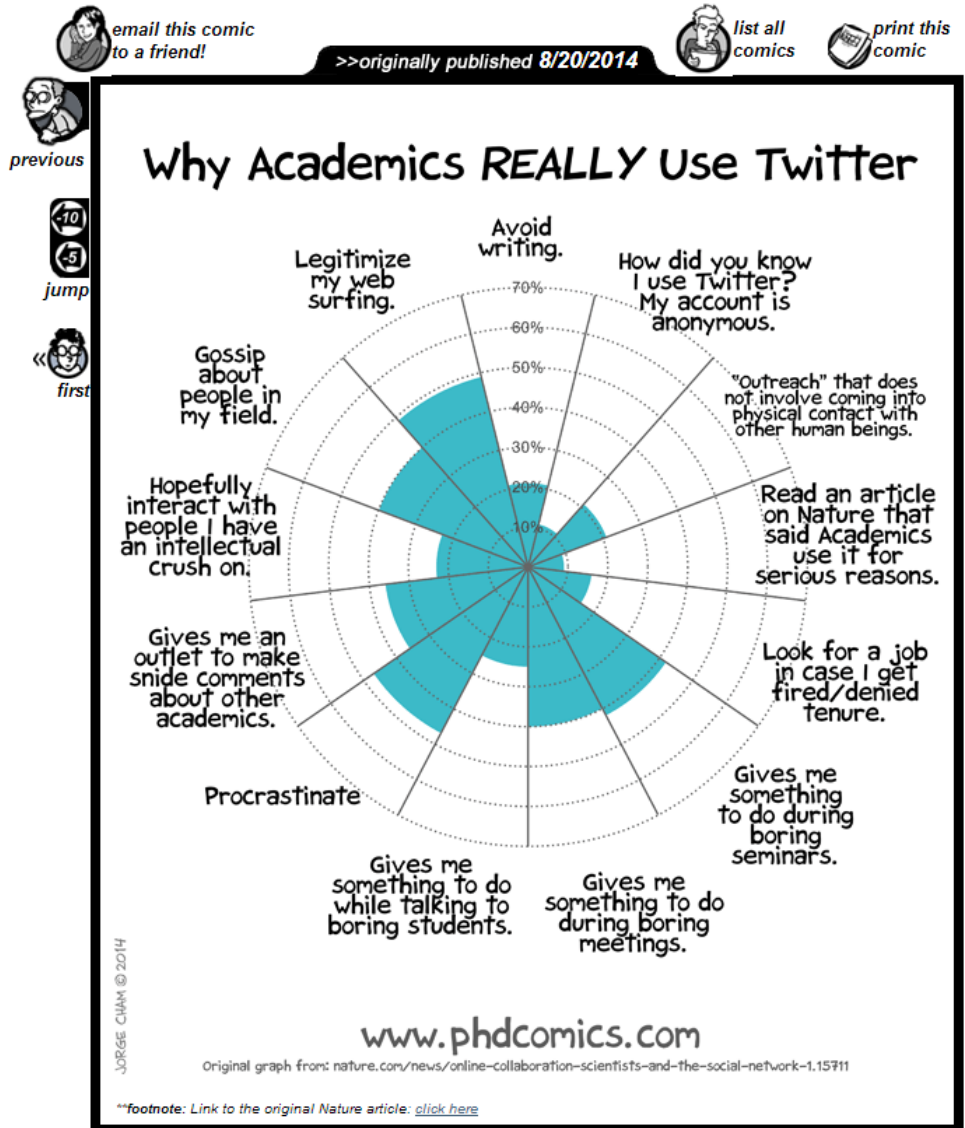


# Quiz - what do altmetrics intend to highlight?

a) quality

b) quantity

c) attention



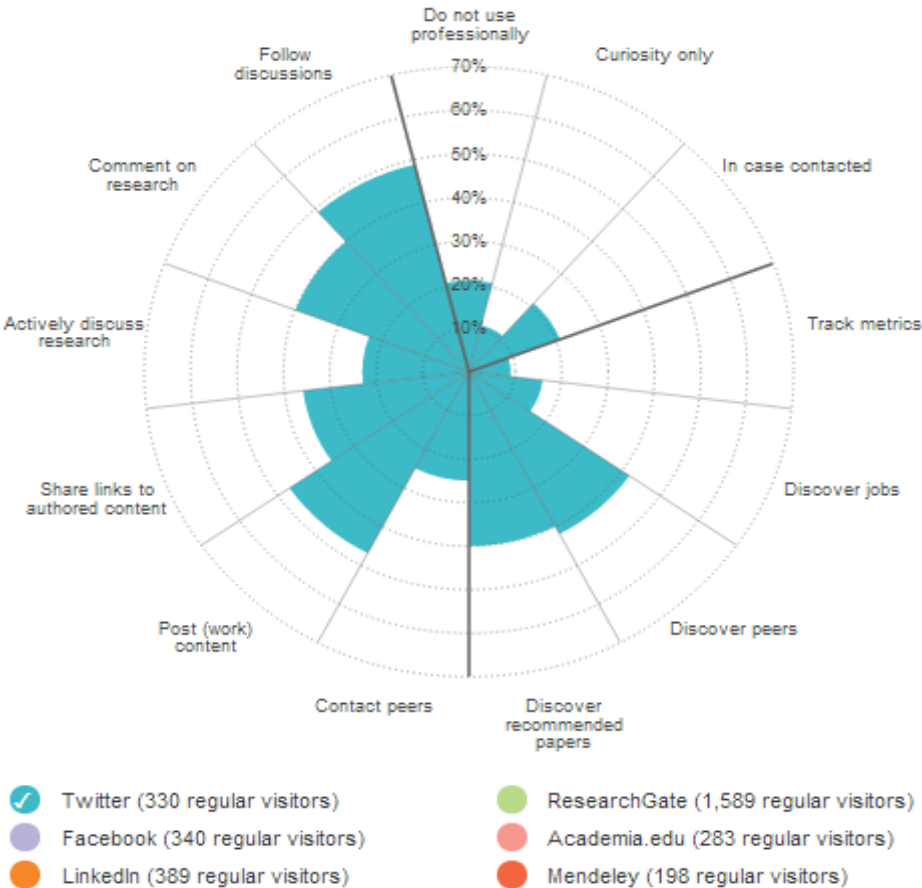
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Emergency Button

# Why academics use social media?

## Interactive: Why scholars use social media

In *Nature's* survey, a subset of scholars who said they 'regularly visited' social media sites were quizzed in detail about their activities.



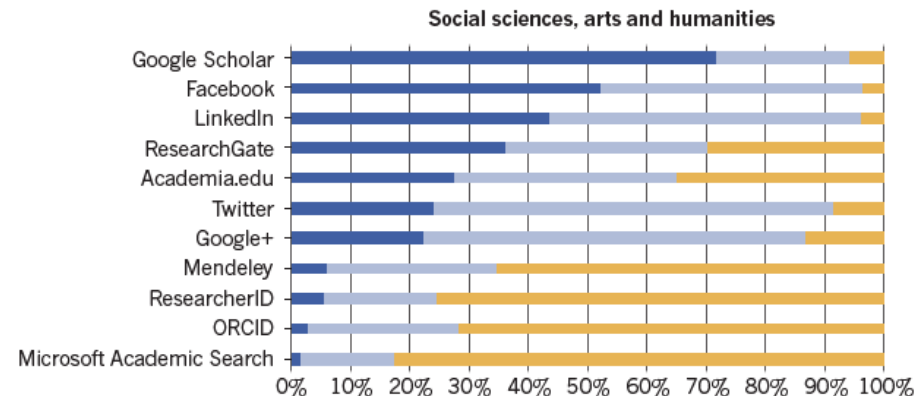
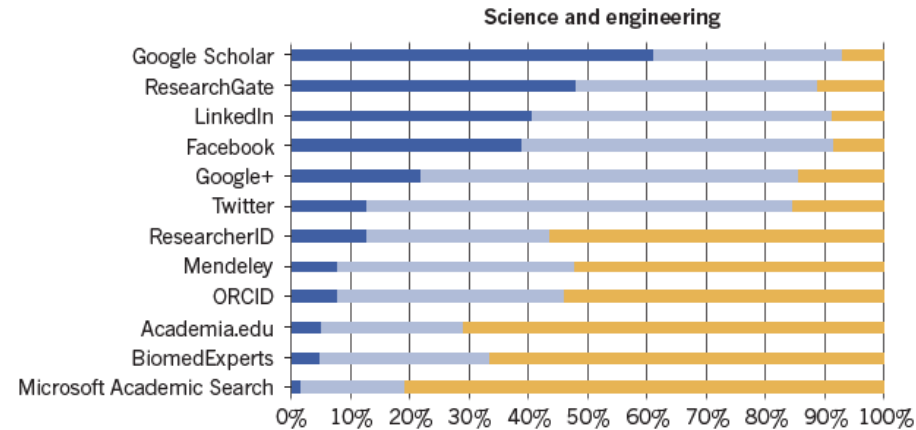
### Voices from the survey

"Good way to interact with journalists and the media."  
 TWITTER USER, AGE 25-34, AUSTRALIA, LECTURER

## REMARKABLE REACH

More than 3,000 scientists and engineers told *Nature* about their awareness of various giant social networks and research-profiling sites. Just under half said that they visit ResearchGate regularly. Another 480 respondents in the humanities, arts and social sciences were less keen on ResearchGate.

- I am aware of this site and visit regularly
- I am aware of this site but do not visit regularly
- I am not aware of this site



# Article Level Metrics Tools



highly recommended highly cited highly saved  
cited

highly cited highly saved viewed saved  
viewed

highly cited highly saved viewed discussed  
viewed

highly cited highly saved viewed saved  
viewed

highly cited highly discussed highly saved



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  - Mentioned in 16 Google+ posts
  - Picked up by 8 news outlets
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  - 4 readers on CiteULike
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## Score in context

Is one of the highest ever scores in this journal (ranked #5 of 485)

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The Guardian

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30 July 2014

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Corporate Communications Manager  
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[amy.bourke@palgrave.com](mailto:amy.bourke@palgrave.com)

An independent statistical analysis of the articles published in *Nature Communications* carried out by the Research Information Network (RIN) has found that open access articles are viewed three times more often than articles that are only available to subscribers. RIN also found that OA articles are cited more than subscription art

## Can open access publishing be a smart career move?

- › 14:14 26 August 2014 by Jenny Blair
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*It can seem like a magic word is needed to get published in the top academic journals. Is open access a genuine alternative?*

Michael Eisen is a professor of genetics at the University of California, Berkeley. He's a Howard Hughes Medical Investigator. He juggles over a dozen graduate students and postdocs. Yet his lab has never published a paper in *Science*, *Nature*, *Cell*, *The Lancet* or the *New England Journal of Medicine*. None appear in traditional high-impact genetics journals, either.

I am an early career researcher, and have pledged to make all of my work openly available, forgoing publication in closed access journals like *Nature* and *Science*. I have been told by peers and mentors that this is career suicide. But I do not believe it has to be. There are so many ways to be open and be successful in academia. There is even evidence that being open can help your career.

Publishing openly, whether via open access journals or self-archiving, can lead to more citations and more visibility for your work. This is especially important for early career researchers as they try to make a name for themselves. Published studies that make data openly available also tend to receive more citations.

“Open Access has the potential to make scientific communication more efficient and effective, creating benefits for researchers, universities and society in general. Open Access also means that outputs can make a greater impact in the research community and beyond.” **Stephen Pinfield, Senior Lecturer, University of Sheffield Information School**

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# THANK YOU FOR YOUR TIME!

## QUESTIONS

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