



# **Measuring Research Impact**

### Nader Ale Ebrahim, PhD Visiting Research Fellow

Research Support Unit Centre for Research Services Research Management & Innovation Complex University of Malaya, Kuala Lumpur, Malaysia

aleebrahim@um.edu.my

www.researcherid.com/rid/C-2414-2009 http://scholar.google.com/citations

22<sup>nd</sup> July 2016

All of my presentations are available online at: <a href="https://figshare.com/authors/Nader Ale Ebrahim/100797">https://figshare.com/authors/Nader Ale Ebrahim/100797</a>

Link to this presentation:

# Measuring Research Impact

Keynote presentation at the 4th International Conference on Researches in Science and Technology (ICRST), 21-22 July 2016, Kuala Lumpur

#### Nader Ale Ebrahim, PhD

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Research Support Unit
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Research Management & Innovation Complex
University of Malaya, Kuala Lumpur, Malaysia
<a href="http://scholar.google.com/rid/C-2414-2009">www.researcherid.com/rid/C-2414-2009</a>
<a href="http://scholar.google.com/citations">http://scholar.google.com/citations</a>

### **Abstract**

**Abstract:** The activity of measuring and describing the impact of academic research is becoming increasingly important around the world. We need tools to measure research impact. **Bibliometrics** as a tool statistically analysis of publications. Bibliometrics has focused on the quantitative analysis of citations and citation counts which is complex. It is so complex and specialized that personal knowledge and experience are insufficient tools for understanding trends for making decisions. However, the reach of a publication can no longer be judged exclusively by the number of **times it is cited**. Because, we are now in the digital and sharing information age, academic conversations are as likely to be found on various academic social networks. So, we need new tools to measure the research impact. Altmetrics are new metrics proposed as alternatives to Impact Factor for journals and personal citation indexes like hindex. Altmetrics attempts to use the online activity to measure impact, buzz, word of mouth for scientific information and it includes new ways to measure usage at the citation level.

**Keywords:** Altmetric, H-index, Improve citations, Research tools, Bibliometrics

# Top 10 authors with the highest profile view counts on ResearchGate

Table 11. Top 10 authors with the highest profile view counts on ResearchGate (9<sup>th</sup> of November, 2015), compared to the same indicator on the 10<sup>th</sup> of September, 2015.

	SEPTEMBER 10 <sup>th</sup>	NOVEMBER 9 <sup>th</sup>	
AUTHOR	(2015)	(2015)	MISMATCH
NAME	PROFILE	PROFILE	(%)
	VIEWS	VIEW	
Nader Ale Ebrahim	19,821	13,281	67.00
Chaomei Chen	7,760	3,937	50.73
Loet Leydesdorff	4,227	1,758	41.59
Bakthavachalam Elango	2,883	1,756	60.91
Zaida Chinchilla	5,840	1,569	26.87
Mike Thelwall	4,297	1,568	36.49
Lutz Bornmann	3,129	1,439	45.99
Wolfgang Glänzel	3,012	1,301	43.19
Kevin Boyack	3,256	1,135	34.86
Peter Ingwersen	2,335	1,025	43.90

Source: Martín-Martín, A., Orduna-Malea, E., Ayllón, J. M., & López-Cózar, E. D. (2016). The counting house, measuring those who count: Presence of Bibliometrics, Scientometrics, Informetrics, Webometrics and Altmetrics in Google Scholar Citations, ResearcherID, ResearchGate, Mendeley, & Twitter. EC3 Reseach Group: Evaluación de la Ciencia y de la Comunicación Científica Universidad de Granada and Universidad Politécnica de Valencia (Spain), In Progress, doi:10.13140/RG.2.1.4814.4402

# March 2016 Top 100 Technology Experts to Follow on Twitter



#22) @computerworlduk - Computerworld UK (#22 last month)





#23) @Tesseract257 - Tesseract257 (Down from #21)





#24) @FouadAkkad - Fouad Akkad (Up from #28)





#25) @elearningpros - Unlimited (Down from #24)





#26) @bbvaOpenMind - OpenMind (Down from #25)





#27) @SteveKuzj - Steve Kuzj (Up from #33)





#28) @AskDyson - Ask Dyson (Up from #29)





#29) @aleebrahim - Nader Ale Ebrahim (Up from #31)

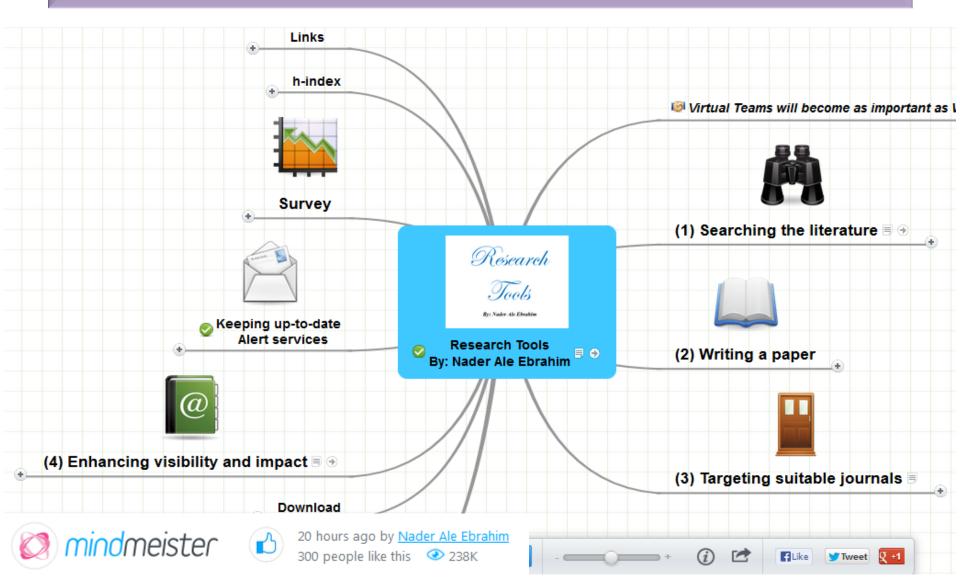
# **Altmetric Ambassador of the Month:**

#### **Nader Ale Ebrahim**

Our Ambassador of the Month for September is Nader Ale Ebrahim, a visiting research fellow at the University of Malaya. He has run over 100 workshops for researchers in Malaysia, and is considered an authority on research promotion practices and metrics tools. Learn more about what Nader has done so far as an Altmetric Ambassador on our blog.



## Research Tools Mind Map



# Measuring your research impact: Getting Started



Cornell / LibGuides / Measuring your research impact / Getting Started

#### Measuring your research impact: Getting Started

Enter Search Words

Search

This guide provides an introduction to the various metrics used to measure researcher and journal impact.

**Getting Started** 

**Author Impact** 

Journal Impact

Tracking and Measuring Your Impact

Broadening your impact

**Table of Contents** 

Getting Started

Author Impact

H-index

G-index

i10-index

Journal Impact

Journal Citation Reports (JCR)

Eigenfactor and Article

#### **Getting Started**

This guide details various ways of measuring research impact, particularly through traditional means of publishing and citation. Before you begin to delve into the various citation metrics, we recommend you do the following three things:

• Sign up for an ORCID Identifier: The Open Researcher Community ID is an increasingly recognized persistent digital identifier. The unique number assigned to you will allow publishers and aggregators of scholarly literature to distinguish you from researchers with similar names. This is a powerful tool in author disambiguation and it takes just a few minutes to sign up. Go to orcid.cornell.edu and follow the instructions to register for your ORCID identifier or to connect an existing ORCID account to your Cornell NetID. Have questions? Contact orcid-help@cornell.edu or visit this guide for more information about getting started.

#### Contact Information



Erin Eldermire

Email Me

# From submission to sharing: the life cycle of an article

- Phase 1: Conception and birth
- Phase 2: Submission
- Phase 3: Reviewers



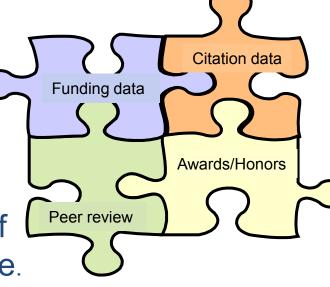
- Phase 4: Production and publication
- Phase 5: Dissemination and archiving
  - The article is published, but its life cycle isn't yet complete. In this phase, dissemination can start; sharing the <u>Share Links</u> article helps increase readership and make it more visible.

## Research impact

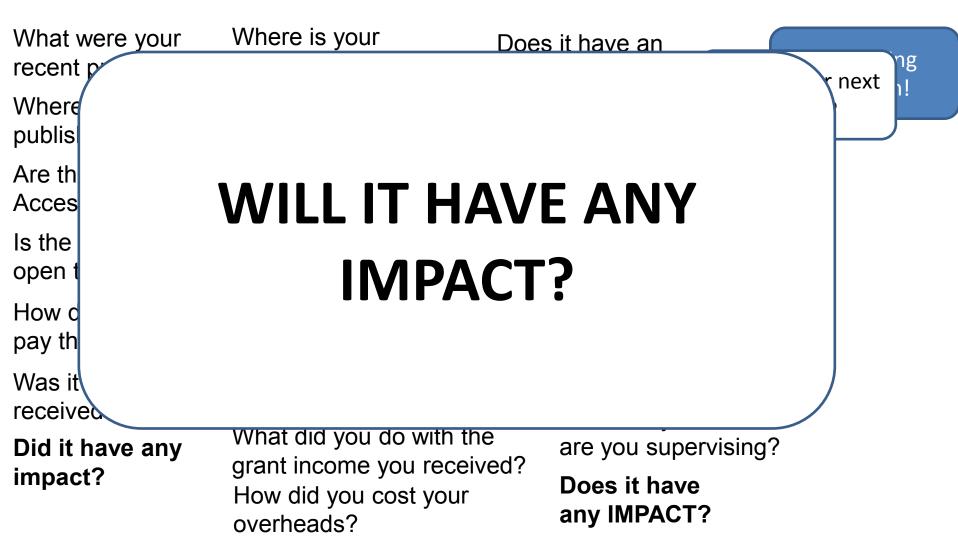
# of and value of Grants awarded

# of awards (e.g. Nobel Prizes)

- Peer evaluation
- Publication counts
- Citation counts/citation metrics
  - Citation metrics are one piece of the research performance puzzle.
- Combination of factors
  - None of these measure works perfectly on its own, there are always anomalies and human judgment is required to interpret the results



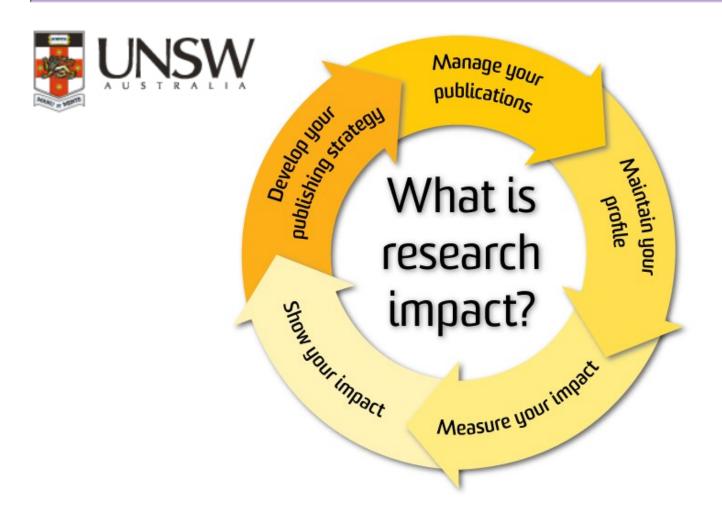
### What it's like being a researcher



Source: Owen Roberson, Research Information Analyst (2015) Research Information and Analytics at Cambridge: Insight over measurement, Research Information Office, Academic Division

## Research Impact Guide

Source: http://subjectguides.library.unsw.edu.au/researchimpact



# Impact











storage links bookmarks conversations

Source: http://altmetrics.org/manifesto/

#### Informetrics, scientometrics, bibliometrics, webometrics, cybermetrics and altmetrics Bibliographies – Whole Internet, Science of largely cyberspace Science references **Bibliometrics** Scientometrics Cybermetrics Altmetrics Web presence, Webometrics visibility and Alternative impact - links, metrics – views, pages, downloads, web documents citations, etc

Source: Onyancha, Omwoyo Bosire. "Can informetrics shape biomedical research? A case study of the HIV/AIDS research in sub-Saharan Africa 1." *Inkanyiso: Journal of Humanities and Social Sciences* 6.1 (2014): 49-65.

# Frequently Used Terms for Research Evaluation Metrics

Term	Short Definition
Bibliometrics	Bibliometrics is a set of methods to quantitatively analyse academic
	literature and scholarly communications.
Informetrics	Informetrics is the study of quantitative aspects of information. This
	includes the production, dissemination, and use of all forms of information,
	regardless of its form or origin.
Scientometrics	Scientometrics is the study of quantitative features and characteristics of science, scientific research and scholarly communications.
Webometrics	Webometrics is the study of quantitative features, characteristics, structure and usage patterns of the world wide web, its hyperlinks and internet
	resources.
Cybermetrics	Cybermetrics is an alternative term for Webometrics.
Librametrics	Librametrics is a set of methods to quantitatively analyse availability of
	documents in libraries, their usage and impact of library services to its user
	community.
Patentometrics	Patentometrics is a set of methods to quantitatively analyse patent
	databases, patent citations and their usage patterns.
Altmetrics	Altmetrics is new metrics proposed as an alternative to the widely used
	journal impact factor and personal citation indices like the h-index. The
	term altmetrics was proposed in 2010, as a generalization of article level
	metrics, and has its roots in the twitter #altmetrics hashtag.
Article Level	Article level metrics is an alternative term for Altmetrics.
Metrics (ALM)	

Source: Das, A.-K. (2015). <u>Research Evaluation Metrics</u>. 7, place de Fontenoy, 75352 Paris 07 SP, France: United Nations Educational, Scientific and Cultural Organization.

### Reasons for bibliometric studies

- Understanding of patterns
  - discovery of regularities, behavior
  - "order out of documentary chaos" [Bradford, 1948]
- Analysis of structures & dynamics
  - discovery of connections, relations, networks
  - search for regularities possible predictions
- Discovery of *impacts*, *effects*
  - relation between entities & amounts of their various uses
  - providing support for making of decisions, policies

# **Major Citation Databases**

Name of Citation	Launched	Scope	Owned by	Terms of
Database				Availability

WEB OF SCIENCE™

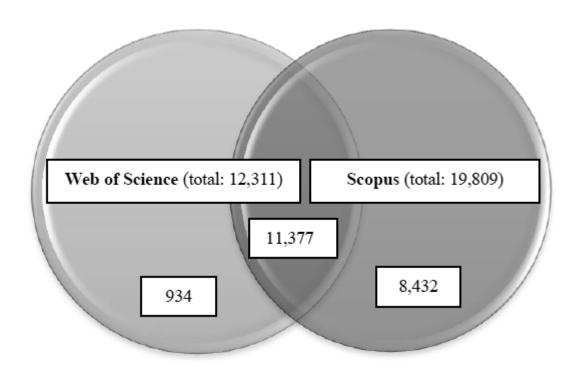
Search

Web of Science™ Core Collectio

Scopus	2004	Global	Elsevier B.V.	Subscription-based
Google Scholar Citations	2004	Global	Google Inc.	Freely Available Online
Microsoft Academic Search	2003	Global	Microsoft Research	Freely Available Online
CiteSeerX (CiteSeerX.ist.psu.edu)	1997	Global; Subject specific	Pennsylvania State University, USA	Freely Available Online

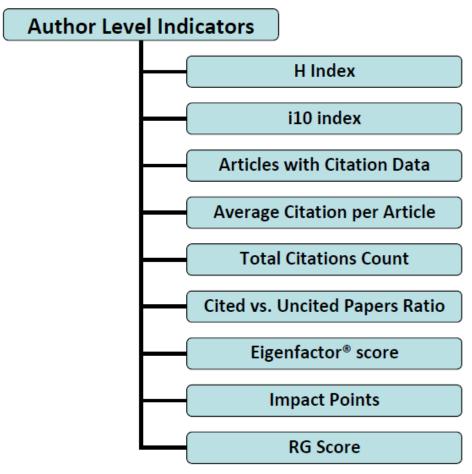
Source: Das, A.-K. (2015). <u>Research Evaluation Metrics</u>. 7, place de Fontenoy, 75352 Paris 07 SP, France: United Nations Educational, Scientific and Cultural Organization.

# A Comparison between Two Main Academic Literature Collections: Web of Science and Scopus Databases



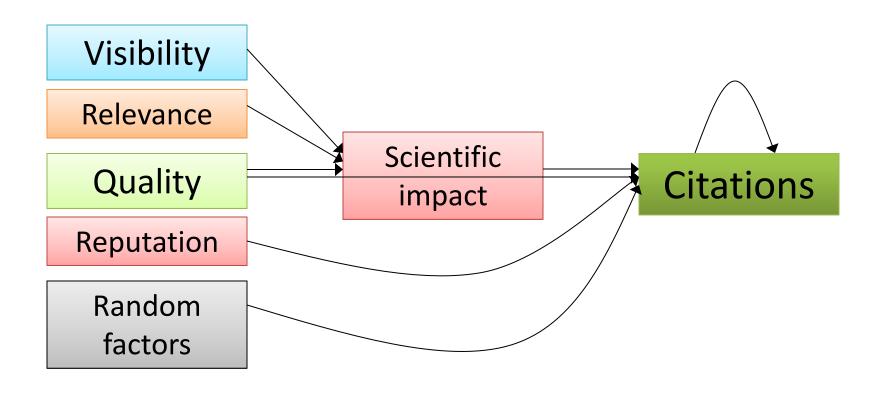
Source: Aghaei Chadegani, Arezoo and Salehi, Hadi and Yunus, Melor Md and Farhadi, Hadi and Fooladi, Masood and Farhadi, Maryam and Ale Ebrahim, Nader, A Comparison between Two Main Academic Literature Collections; Web of Science and Scopus Databases (April 7, 2013). Asian Social Science, Vol. 9, No. 5, pp. 18-26, April 27, 2013. Available at SSRN: <a href="http://ssm.com/abstract=2257540">http://ssm.com/abstract=2257540</a> Ebrahim

### **Author Level Indicators**

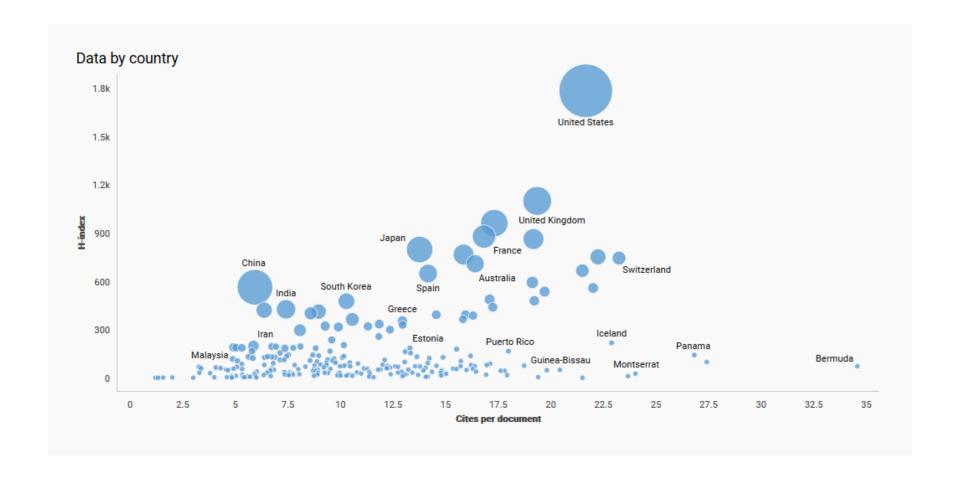


Source: Das, A.-K. (2015). <u>Research Evaluation Metrics</u>. 7, place de Fontenoy, 75352 Paris 07 SP, France: United Nations Educational, Scientific and Cultural Organization.

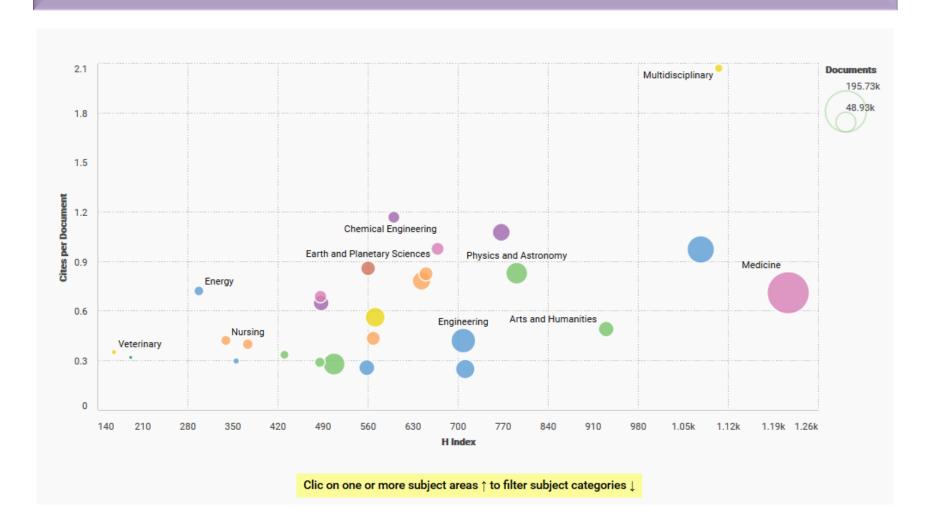
# Citations as a proxy of scientific impact



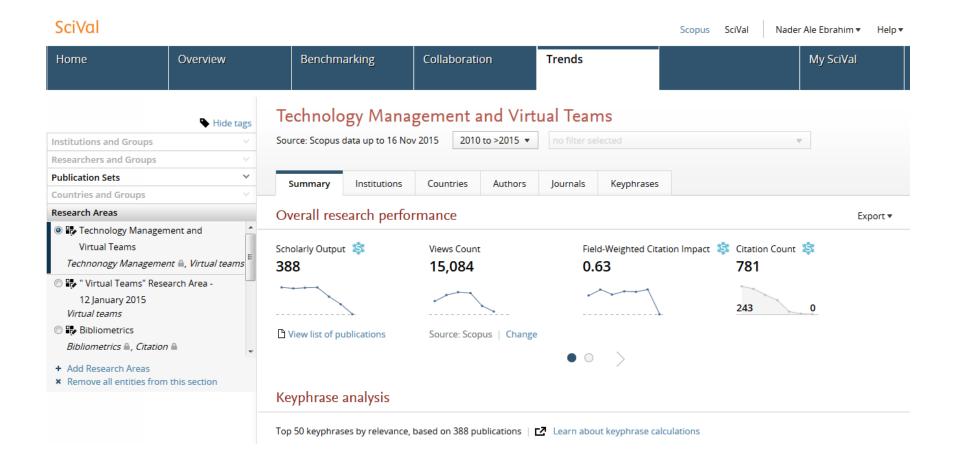
## **World Report**



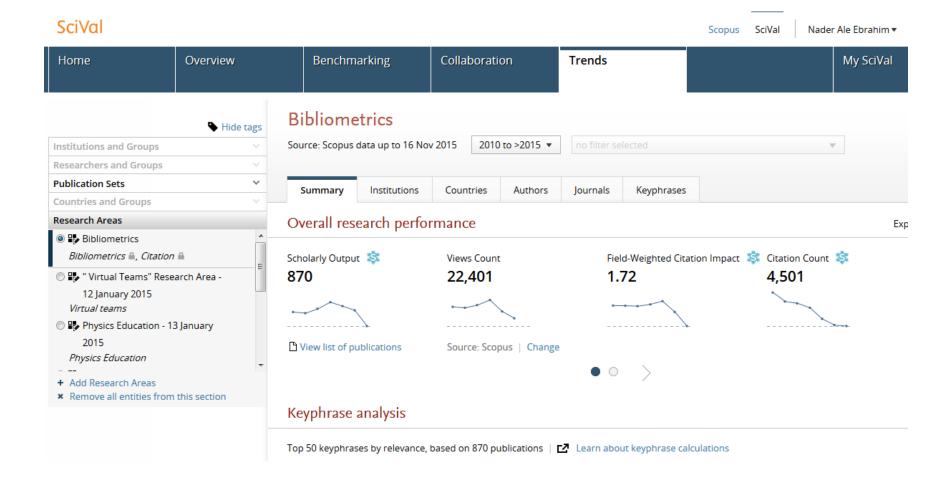
## **Subject Bubble Chart - US**



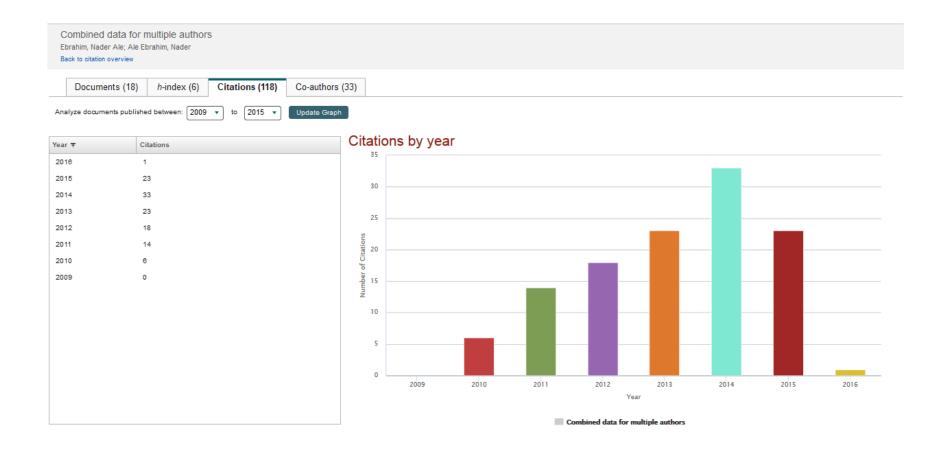
# Technology Management and Virtual Teams



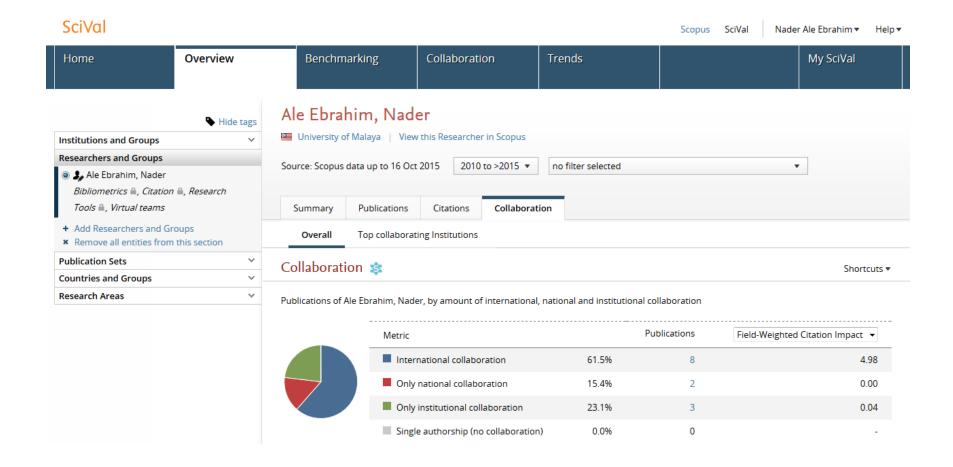
### **Bibliometrics**

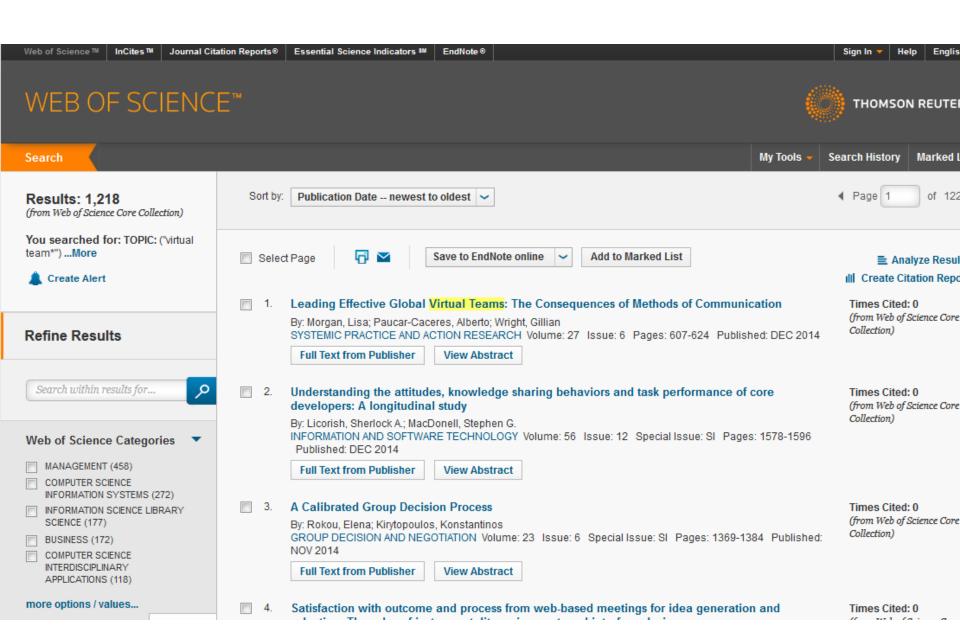


## SCOPUS - Analyze author output



## SciVal - Elsevier Research Intelligence





Help

#### WEB OF SCIENCE™



Search

Return to Search Results

My Tools

**Search History** 

#### Citation Report: 1218

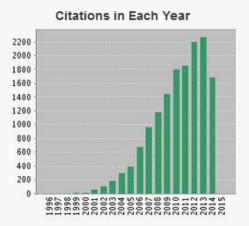
(from Web of Science Core Collection)

You searched for: TOPIC: ("virtual team\*") ...More

This report reflects citations to source items indexed within Web of Science Core Collection. Perform a Cited Reference Search to include citations to items not indexed within Web of Science Core Collection.

#### Published Items in Each Year 160 140 120 100 80 60 40 20





The latest 20 years are displayed. View a graph with all years.

Results found: 1218 Sum of the Times Cited [?]: 15217 Sum of Times Cited without self-citations [?]: 10399 Citing Articles [?]: 8040 Citing Articles without self-citations [?]: 7210 Average Citations per Item [?]: 12.49 h-index [?]: 58

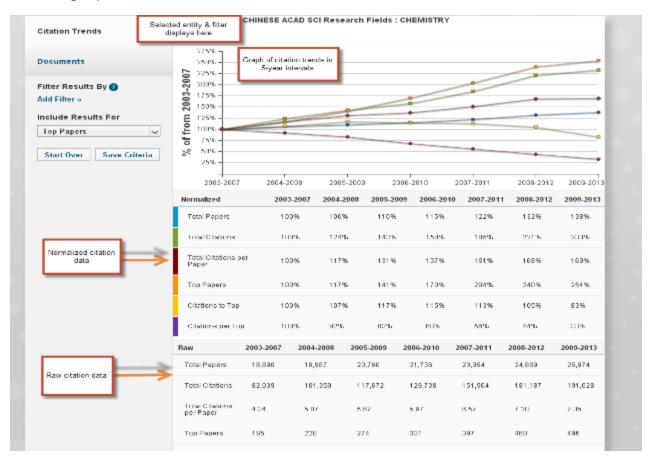
#### DATA DRILL DOWN: CITATION TRENDS

Users can view citation trends for any entity in the rankings list. For example, if the user clicks on the name CHINESE ACAD SCI:

					Customize Indicat
	Institutions	Web of Science Documents	Cites ▼	Cites/Paper	Top Papers
(	CHINESE ACAD SCI	49,023	618,315	12.61	7
2	UNIV CALIF SYSTEM	19,690	497,452	25.26	7
3	US DEPT ENERGY	19,077	391,755	20.54	5
4	MAX PLANCK SOCIETY	12,151	248,622	20.46	3
5	SWISS FEDERAL INSTITUTES OF TECHNOLOGY DOMAIN	10,535	218,033	20.70	2
6	CSIR INDIA	16,332	198,253	12.14	1
7	CSIC	12,694	191,371	15.08	1
8	KYOTO UNIV	9,198	161,807	17.59	1
9	RUSSIAN ACAD SCI	38,236	159,575	4.17	
	UNIV CALIF	5 000	157.010	20.44	

#### DATA DRILL DOWN: CITATION TRENDS

They will be taken to the Citation Trends Page for the Chinese Academy of Sciences, which shows a trend graph, normalized citation data, and raw citation data:



### **Practical Advice**

- Find out what's Hot
  - http://info.scopus.com/topcited/
  - http://top25.sciencedirect.com/
- Find the trends of the subject area
  - Search tips (including alerts)
  - Journals, authors, publications per year (Scopus)
- Evaluate which journal is right for your article

ΙF

Journal & Country

- Impact Factor
- Subject Specific Impact Factor (<a href="http://tinyurl.com/scopusimpact">http://tinyurl.com/scopusimpact</a>
- SCImago Journal & Country Ranking (<a href="http://scimagojr.com/">http://scimagojr.com/</a>)
- Journal Analyzer
- h-Index
- Find out more about the journals
  - Who are the editors?
  - Guide for authors
  - Article of the future

http://beta.cell.com/erickson/

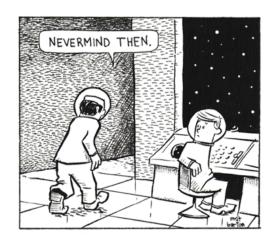




#### Your paper is worthless if no one reads, uses, or cites it







#### A research study is meaningful only if...

- it is clearly described, so
- someone else can use it in his/her studies
- it arouses other scientists' interest and
- allows others to reproduce the results.

By submitting a manuscript you are basically trying to sell your work to your community...

Source: How To Get Your Article Published: From title to references, From submission to revision Presented by: Anthony Newman, Elsevier, Amsterdam, Birmingham, Nov. 2010

# 861 downloads within 24 hours of the first tweet about a paper



Who gives a tweet? After 24 hours and 860 downloads, we think quite a few actually do





Students, early career researchers and established academics may all ponder about how many interviews will be enough when designing their research projects. Sarah Elsie Baker from Middlesex University and Rosalind Edwards from NCRM decided to tackle this subject and



Popular Posts This Week

# 861 downloads within 24 hours of the first tweet about a paper

 The paper was uploaded online late afternoon on Monday 26th March and was first tweeted to our followers the following day. The paper caught the interest of NCRM Twitter followers and within 24h it was retweeted 10 times to over 5000 followers and shared 135 times using social sharing tools (email, microblogging, social bookmarking, social networking) available on NCRM website. This resulted in 861 downloads within 24 hours of the first tweet about our paper. This was clearly a Twitter effect, as the paper was not publicised anywhere else at that time.

### How is the Altmetric score calculated?

#### The score is a weighted count

The score is derived from an automated algorithm, and represents a weighted count of the amount of attention we've picked up for a research output. Why is it weighted? To reflect the relative reach of each type of source. It's easy to imagine that the average newspaper story is more likely to bring attention to the research output than the average tweet. This is reflected in the default weightings:

News	8
Blogs	5
Twitter	1
Facebook	0.25
Sina Weibo	1
Wikipedia	3
Policy Documents (per source)	3
Q&A	0.25
F1000/Publons/Pubpeer	1
YouTube	0.25
Reddit/Pinterest	0.25
LinkedIn	0.5

### "Alternative Metrics" Tools

- Altmetric.com
- Impactstory.org





- Plumanalytics.com
- ImpactStory. • PLoS Article-Level Meuros
- Usage Count (webofknowledge.com)
- Bookmetrix (<a href="http://www.bookmetrix.com">http://www.bookmetrix.com</a>)
- Article Metrics in Scopus



# **Altmetrics**

 Altmetrics are new metrics proposed as alternatives to Impact Factor for journals and personal citation indexes like h-index. The term "article level metrics" was first put forward in 2010, but altmetrics (derived from "alternative metrics") become prevalent as it better suggested a range of new metrics. Altmetrics can be applied not only to articles but also to people, journals, books, data sets, web pages, etc. Many aspects of the impact of a work (such as article views, downloads, mentions in social media and new services) can be measured, as well as traditional citation counts.

Source: http://www.swansea.ac.uk/iss/researchsupport/metrics/altmetrics/

# **Impactstory**



# 

University of Malaya Visiting Research Fellow

**★**2 **4 6**2

OVERVIEW

#### **ACHIEVEMENTS**

view all



### Global Reach 82

Your research has been discussed in 15 countries. That's high: only 17% of researchers have their work as widely discussed.

Your tweeters come from Austria. Brazil, Canada and 12 more.



### Open Sesame 98

You've published 60% of your research in gold open access venues. This level of openness is matched by only 2% of researchers.

### **MENTIONS**

online mentions

### **PUBLICATIONS**

Virtual R&D Teams: A New Model for Product Dev 2015 International Journal of Innovation

25 🔰

A comparison between two main academic literatu of science and scopus databases 2013 Asian Social Science





# 

University of Malaya Visiting Research Fellow

**★**2 **3 6**2

OVERVIEW

ACHIEVEMENTS

ACTIVITY

### **ACHIEVEMENTS**

view all



## Open Access

**★** Top 25%

82% of your research is free to read online. This level of availability puts you in the top 13% of researchers.



### Global Reach

**★** Top 25%

Your research has been saved and shared in 45 countries. That's high: only 12% of researchers get that much international attention.

Countries include Argentina, Australia, Austria and 42 more

### **ACTIVITY**

Saves and shares

### **PUBLICATIONS**

A comparison between two main academic literatu collections: Web of science and scopus databases 2013 Asian Social Science

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Groups v Sign in Q

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## Nader Ale Ebrahim

نادر آل ابراهیم

ResearcherID, DORCID, Bepress, RePEc,

ጸ Google Scholar, 🕏 Research tools, 🕏 Imgur, Vizualize, 🕏 Quora,

🔋 The Berkeley Electronic Press™, & Archive, 📊 Resume, 📊 LinkedIn,

Blogspot, & Postach.io, FaceBook, About.me, SCOPUS,

🦚 The Effective Use of "Research Tools" and Resources – Training of Trainers (TOT), 🔕 ResearcherID, 🕹 Peerevaluation,

EduBlogs, & Managing Research Candidature, PSlid Share, Science Wise, Mendeley,

🔋 The academic impact of research: Current and the future citation trends in developing countries, 💾 Delicious,

♣ Practical Guide to Write a PhD Thesis and publish papers based on the thesis, ♣ MPRA, Research Tools Box, ☐ CiteULike, ♣ Zotero,

ResearchGate, 💆 arxiv, 🕹 Pearl Trees, 📳 Enhancing Research Visibility and Improving Citations: Publication Marketing Tools, 🕶 Flickr,

🔽 SSRN. 🔽 Social Science Research Network (SSRN). 🕹 Homepage





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## Nader Ale Ebrahim

نادر آل ابراهیم

ResearcherID, ORCID,

🔋 The Berkeley Electronic Press™, ৳ RePEc, ጸ Google Scholar,

# Research tools, # Imgur, Vizualize, # Quora, # Copernicus, # Diigo,

Blogspot, & Postach.io, FaceBook, About.me, SCOPUS,

🌇 The Effective Use of "Research Tools" and Resources – Training of Trainers (TOT), 🙆 ResearcherID, 🕹 Peerevaluation,

■ The academic impact of research: Current and the future citation trends in developing countries, 
■ Delicious,

ResearchGate, arxiv, Pearl Trees, Enhancing Research Visibility and Improving Citations: Publication Marketing Tools, Flickr,

📉 Social Science Research Network (SSRN), 🔟 ORCID, 📳 The Berkeley Electronic Press™, 🖏 Social Science Research Network (SSRN),

# Homepage



# **PlumX Metrics**



USAGE (views, downloads)



**CAPTURES** (bookmarks, favorites, readers)



MENTIONS (Wikipedia, comments, blogs)



SOGAL MEDIA (Fa cebook likes, shares, tweets)

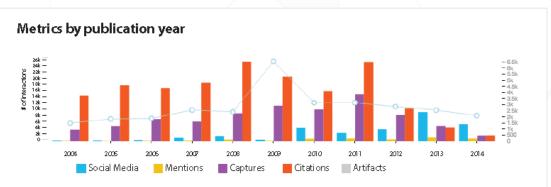


CITATIONS (Scopus, patents)

## **Analyze**

You can aggregate metrics at any level to help you understand what is happening with your grant-funded research. For example you can see output and metrics by:

- Researcher
- Grant
- · Department
- Journal



In this example, it is apparent that citations (red bars) are a lagging indicator; there are substantially fewer citations in the recent years, especially 2013 and 2014. The other categories of metrics help you see what has been going on recently.

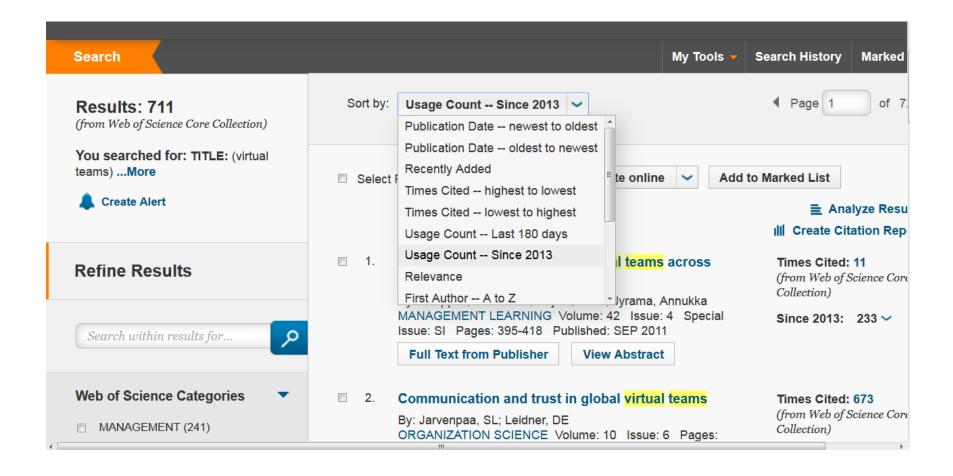
# Public Library of Science (PLOS) Article-Level Metrics (ALMs)

At PLOS, we believe that research articles should primarily be judged on their individual merits, rather than on the basis of the journal in which they were published. In March 2009, we inaugurated a program to provide Article-Level Metrics (ALM) on every article across all journals. Article-Level Metrics (ALMs) capture the manifold ways in which research is disseminated and can help users determine the value of an article to them and to their scientific community. The regularly updated data include the following metrics:

#### **Discussed** Viewed Saved Cited Recommended **PLOS Journals** Mendeley CrossRef Twitter (HTML, PDF, CiteULike Facebook F1000Prime Scopus XML) Wikipedia Web of Science PubMed Central Reddit **PubMed Central** (HTML, PDF) **PLOS Comments PMC Europe** Figshare (HTML, Downloads, Likes) ResearchBlogging PMC Europe **Database Links** ScienceSeeker Nature Blogs Wordpress.com

Source: http://www.lagotto.io/plos/

# **Usage Count**



# Elsevier journals <u>Top downloaded OA articles</u>

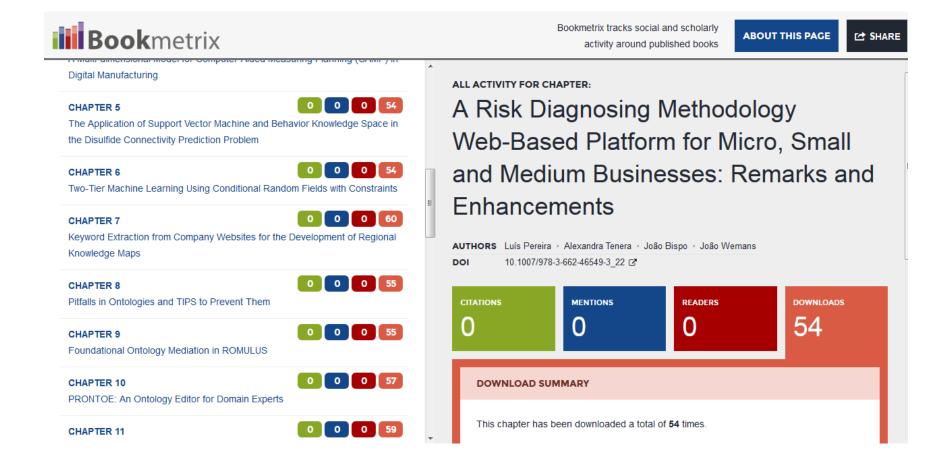
## **ELSEVIER**

Open Access

Here you'll find the most-downloaded Open Access Articles for Elsevier's journals.

- · Agriculture Sciences
  - Agriculture Science, General
  - Forest Science
  - o Plant Science
  - o Soil Science
- Aquatic Sciences
  - Marine and Freshwater Biology
  - Oceanography
  - o Water Resources
- Chemistry
  - Analytical Chemistry
  - o Colloids
  - o Electrochemistry
  - Inorganic Chemistry
  - o Organic Chemistry
  - o Physical and Theoretical Chemistry
  - Spectroscopy
- Computer Science
  - Artificial Intelligence
  - o Computer Science for Engineering
  - o Microelectronics and Hardware

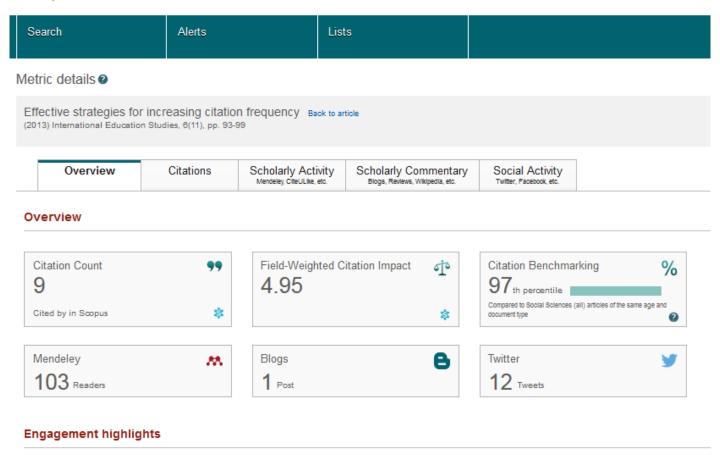
# **Bookmetrix - Springer**



# **Article Metrics in Scopus**

# Effective strategies for increasing citation frequency (2013) International Education Studies, 6(11), pp. 93-99

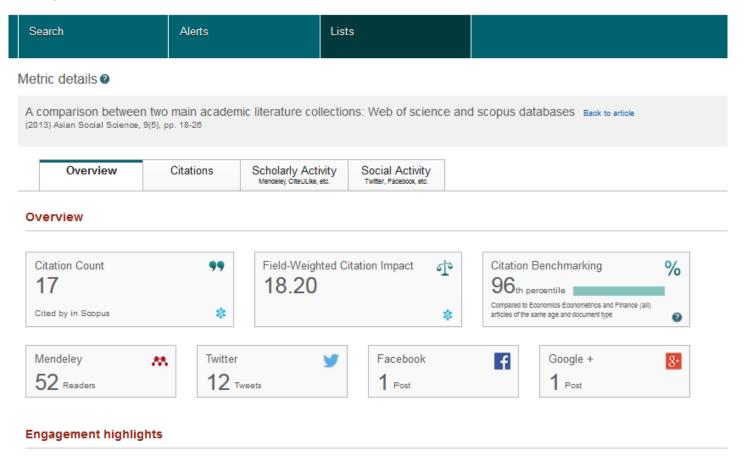
### Scopus



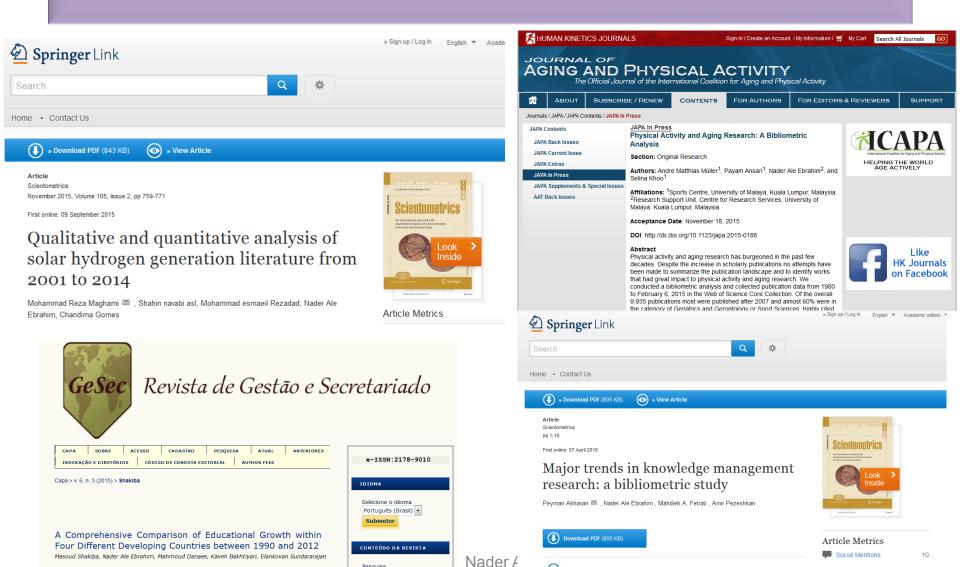
# **Article Metrics in Scopus**

A comparison between two main academic literature collections: Web of science and SCOPUS databases (2013) Asian Social Science, 9(5), pp. 18-26

### Scopus



# My recent publications



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E-mail: aleebrahim@um.edu.my



Twitter: @aleebrahim



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## Nader Ale Ebrahim, PhD

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Research Support Unit
Centre for Research Services
Research Management & Innovation Complex
University of Malaya, Kuala Lumpur, Malaysia
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