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Campus Conversation: Utilizing Citation Impact Indicators

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Campus Conversation: *Bibliometrics and contextualizing research*

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Campus Conversations

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Outline of this Session

What are citation impact indicators?

Comparing Scopus, Web of Science (InCites), Google Scholar

Functionality of Web of Science/InCites

Alternative metrics (altmetrics)

Boosting your researcher impact

Citation Impact Indicators (E.g. researcher analytics, bibliometrics, etc.)

What are they?

Citation impact indicators are **analytical tools** which are meant to **provide context** regarding the impact of research, researchers, research institutions, journals, and disciplines based on who has cited that research and where.

How are they determined?

Traditionally, citation impact indicators are **determined by evaluating citations** (and the journals in which they appear) **within a particular academic database** and then comparing that research to other research within that particular field. Such metrics are provided via Web of Science, Scopus, Google Scholar, and more.

Different scores for different databases used (E.g Web of Science/InCites, Elsevie/Scopus, Google Scholar, Research Gate, etc.) may all have different scores based on how those databases index articles.

(A Few) Popular Citation Impact Indicators (there is overlap!)

Authors

– Determine by the value of papers (N) by an author with N or more citations

NumbH-indexer citations

Number of documents (and documents that are high-performing)

Altmetric attention score - Reception across various social media and web platforms

Articles

Category normalization impact – Shows how a paper performs relative to the average baseline for its category

Overall times cited

Journals

Journal Impact Factor – Average cites of published papers over the last two years (only in WoS)

Eigenfactor – A normalized measure of the "importance" of a journal based on readership and output within the field

Times Cited

Acceptance Rate - The percentage of submissions accepted for publication as compared to all submitted

Institutions

Number citations

Number of documents

Number of documents that are high-performing - Documents in top 1% or 10%

Collaborations and grants

Citation Metrics: The Good and Bad

The Good:

Helps conceptualize a researcher's place within their field

Many of the current (and past) problems are being addressed

The Bad:

May create a culture of evaluation which is based on flawed or incomplete data

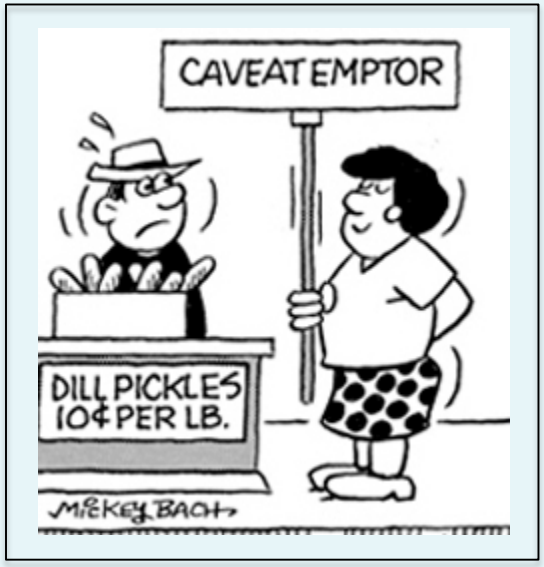
There is an underrepresentation of articles from within the disciplines of the social sciences and arts and humanities (and an abundance of articles from within the STEM disciplines) (Mingers & Lipitakis, 2010; Mongeon & Paul Hus, 2016)

Citation and metadata errors contributes to flawed analytics (Bharathi, 2013; Schmidt, Franceschini, Maisana, & Mastrogiacomo, 2016)

Some authors may artificially boost their rankings through self-citations (May & Janke, 1967; Ferguson, Marcus, & Oransky, 2014; Ionnidis, 2015; Biagioli, 2016; Caon, 2017)

Over-representation of English-speaking journals within these databases (Meho & Yang, 2007; Mongeaon & Paul-Hus, 2016) and a underrepresentation of research coming out of non-USA, UK, or Western European countries (Brown 2014; Mongeon & Paul Hus, 2016)

And a Few Caveats…



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Considerations:

Cross-field comparisons cannot be made

There is no one-size fits all indicator

Citation metrics are better used as a well thought out group of data points

Many metrics (such as h-index) favors older research (since it takes time to get cited)

The system can be gamed (self-citations, citation agreements, double-dipping research)

Traditionally, such indicators do not measure societal impact, legislation, downloads and views, patents, etc. – Are we missing the bigger picture?

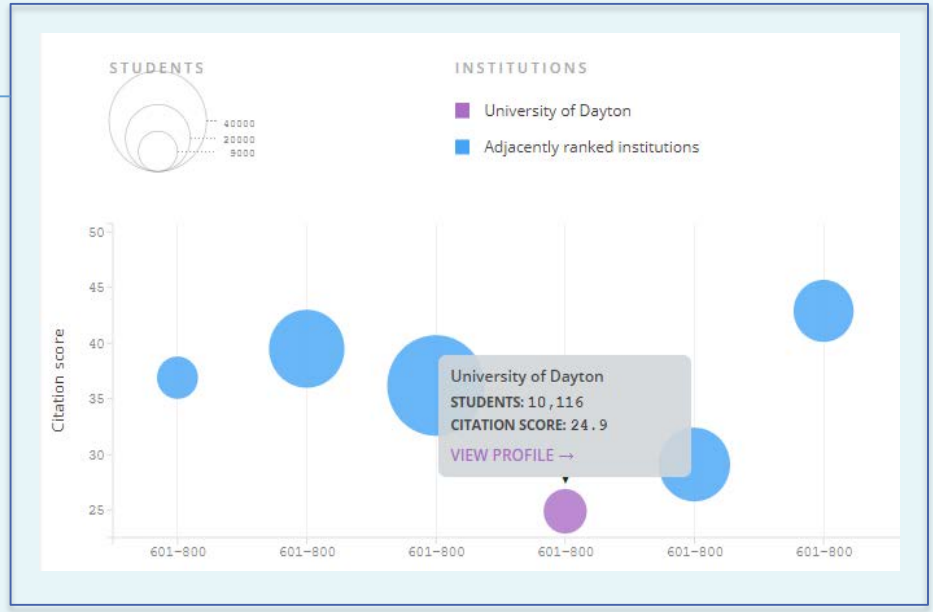
Different scores for different indexers

The University of Dayton, as a whole does not determine tenure and promotion based on citation impact indicators

Citation Impact Indicators (uses)

Institutional Level:

- Marketing and comparisons across universities (E.g. World University Rankings)
- Justification for grant money
- Understanding research output across academic departments (Bennett, Leonard & Wrublewski, 2012)
- Understanding possible returns on investments



The World University Rankings

Researcher Level:

- Contextualizing the research environment (Cronin & Meho, 2008; Campbell et. al., 2010)
- Locating collaborative opportunities (Corall, Kennan & Afzal, 2013; Bladek, 2014)
- Justification for grant money and other resources (Ball & Tunger, 2006; Hendrix, 2010; Bladek, 2014)
- Justification of promotion and tenure for faculty (Hendrix, 2010; MacColl, 2010; Bladek, 2014)

Comparing the Big Resources (Overview)

Clarivate/Web of Science

(InCites)

The resource that UD subscribes to
Very good data visualizations
Arguably better gatekeepers of research

Scopus

Provides free author metrics
Provides the most academic journal titles
Has the most disciplines covered (peer reviewed)
Built in Altmetrics (PlumX)

Google Scholar

Free to use
Stronger selection of non-English titles
Arguably the best selection of conference proceedings
Indexing getting better (quality control has been an issue) Franceschini, Maisano, & Mastrogiacomo, 2016; Gavel & Iselid, 2018)

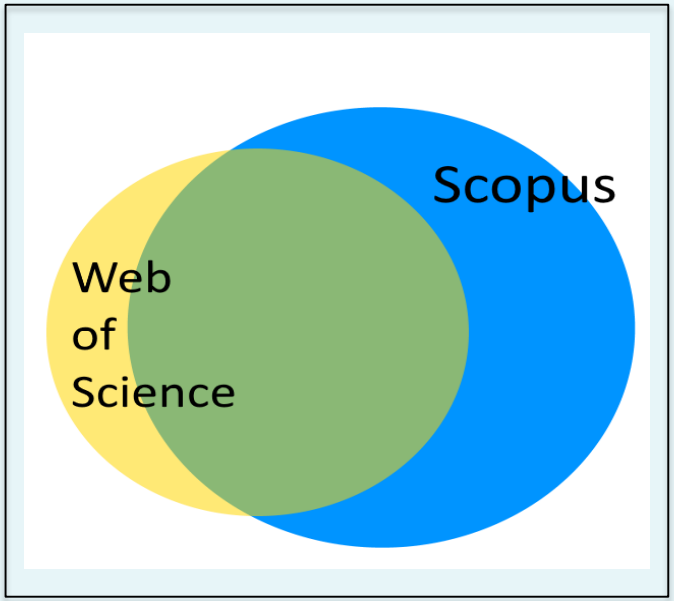
Overlap Between Web of Science (WoS) and Scopus

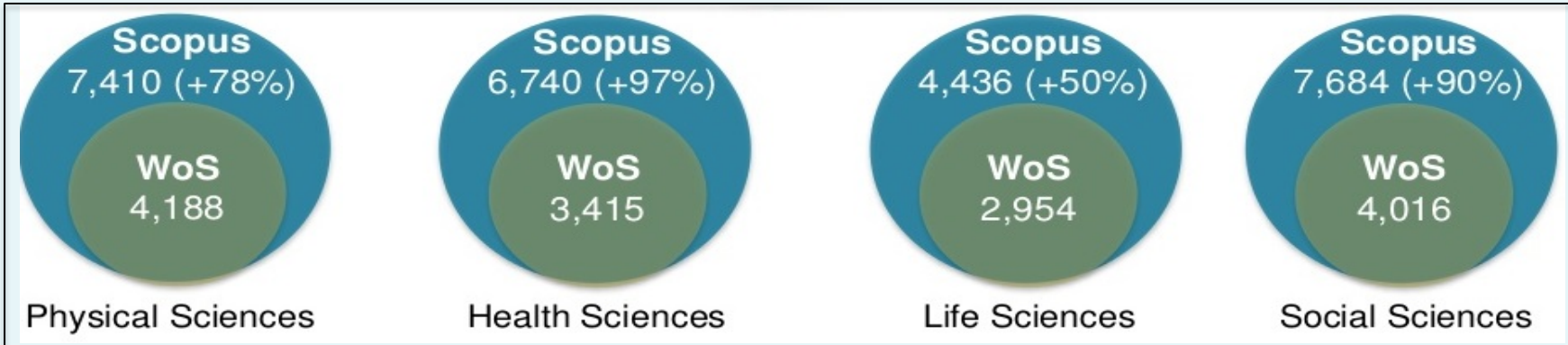
There is a large amount of overlap in article coverage within the Scopus and WoS databases

Scopus covers a wider range of publications than WoS and almost all journals covered within WoS are also indexed within Scopus (Mongeon & Paul-Hus, 2016; Waltman, 2016)

There is a large degree of similarity between Wos and Scopus regarding how universities and countries are ranked (Archambault, Campbell, Gingras, & Lariviere, 2009; Torres-Salinas, et al. 2009)

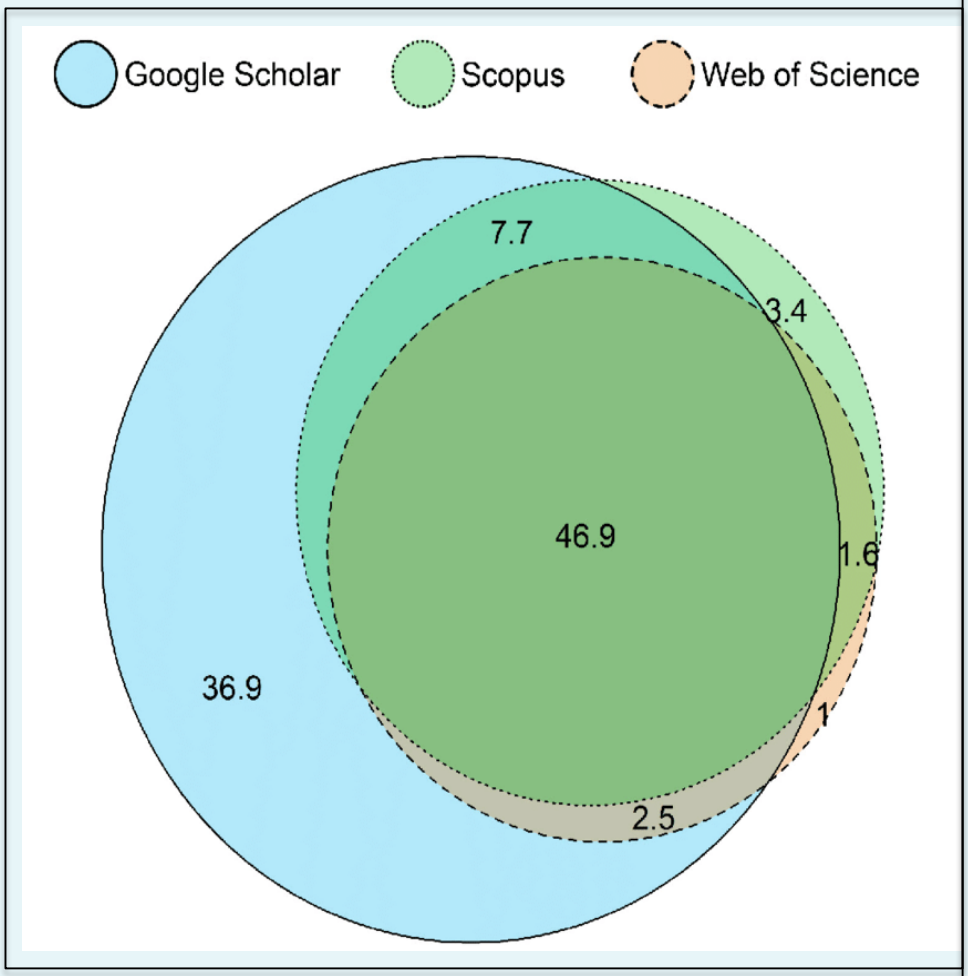
Usability opinions appear similar across these platforms





https://www.elsevier.com/solutions/scopus

Google Scholar is Getting Better!



Gavel & Iselid, 2018

Google Scholar (GS) indexes materials through web crawlers and has indexed approximately 160 million documents (Francheschini, 2016)

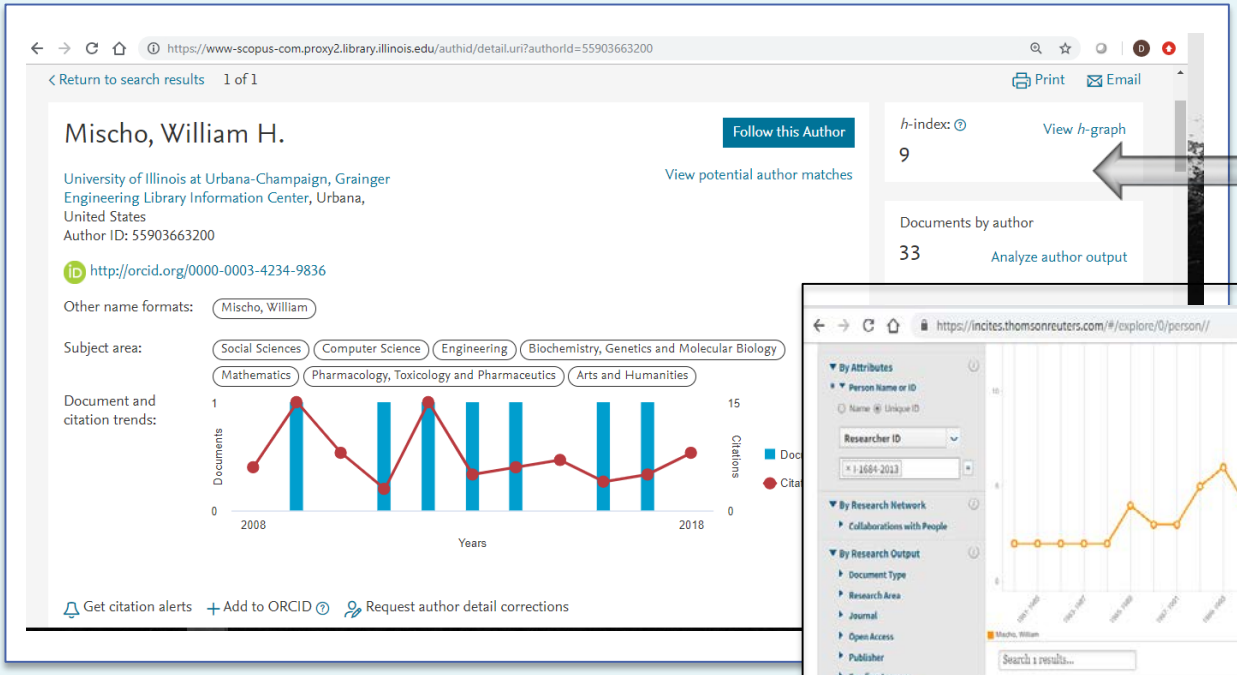
GS has been frequently criticized for its lack of quality control and its lack of overall coverage of academics materials (Lasda Bergman, 2012; Fran, 2016; Waltman, 2016)

Newer research has shown some tremendous improvements in GS (Francheschini, 2016; Gavel & Iselid, 2018)

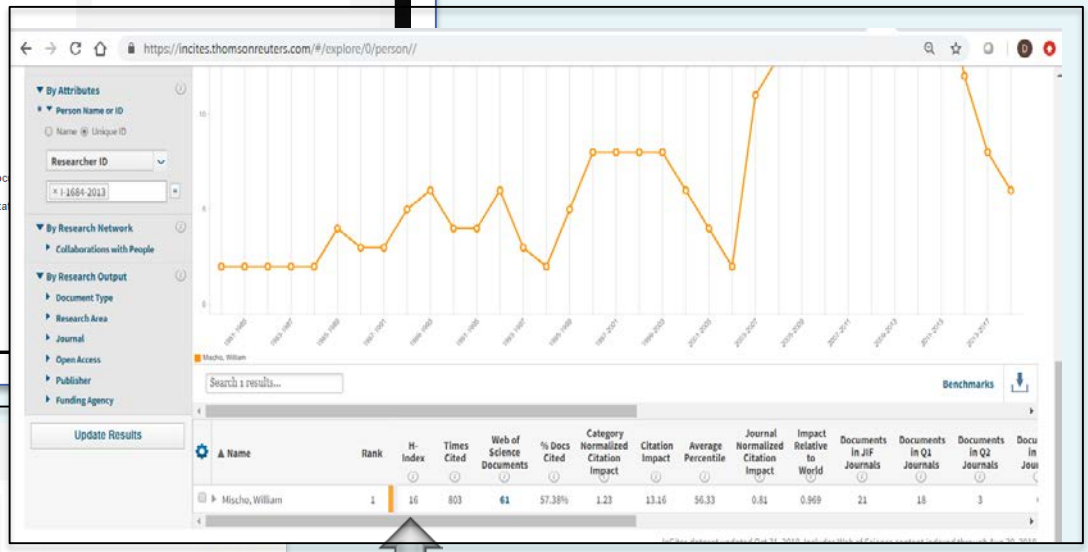
Gavel and Iselid, (2018) recently found that:

- 46.9% of all citations were found by the three databases. GS contained the most citations of the three.
- An additional 10.2% of all citations were found by both GS and Scopus (7.7%), or GS and WoS (2.5%). Over a third (36.9%) of all citations were only found by GS.
- Most of the citations found only in GS were from non-journal sources (48%-65%) .
- Many sources in GS were non-English (19%-38%), and tended to be less cited than sources found in Scopus or WoS.

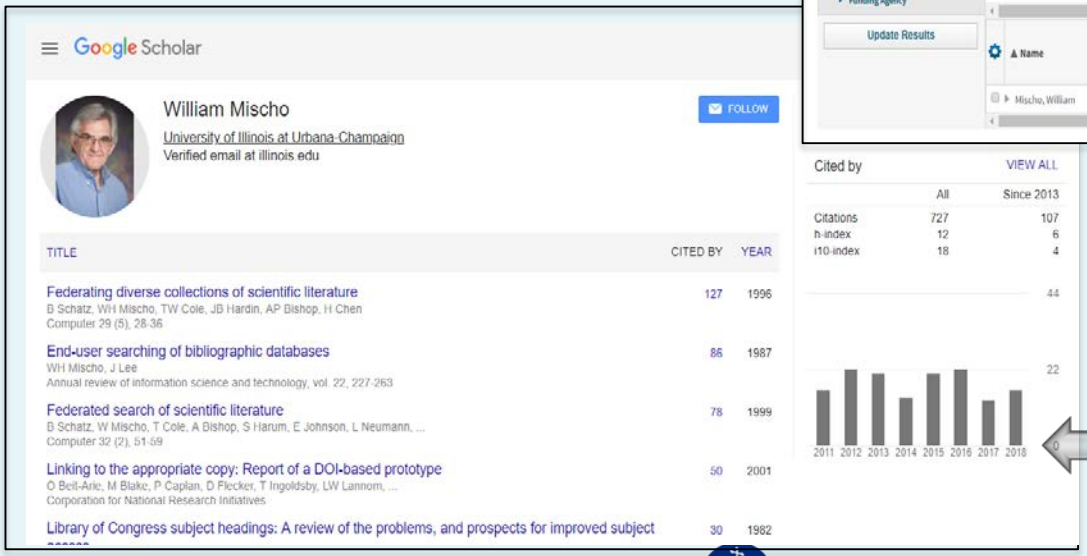
Three H-indexes for One Researcher



Scopus (h-index = 9)

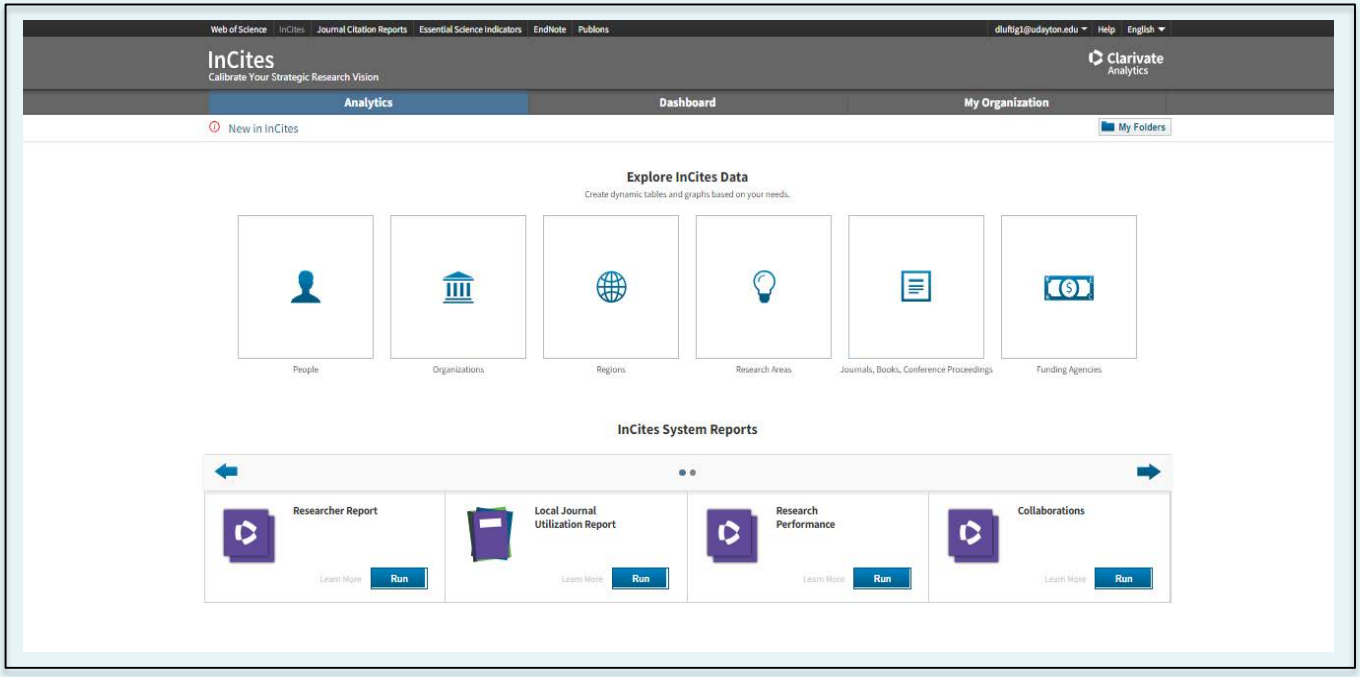


WoS InCites (h-index = 16)



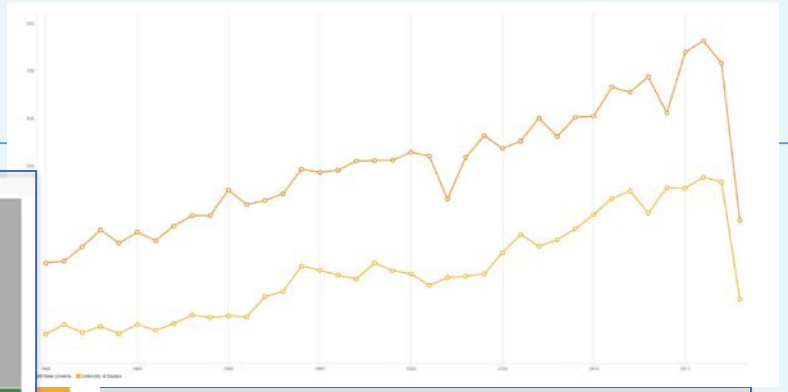
Google Scholar (h-index = 12)

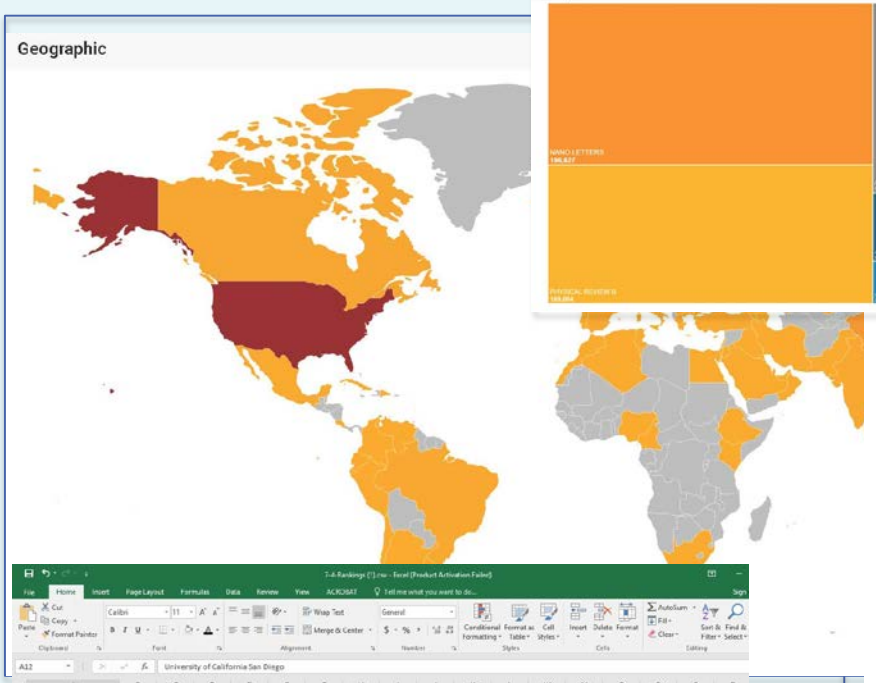
Some Functions of InCites

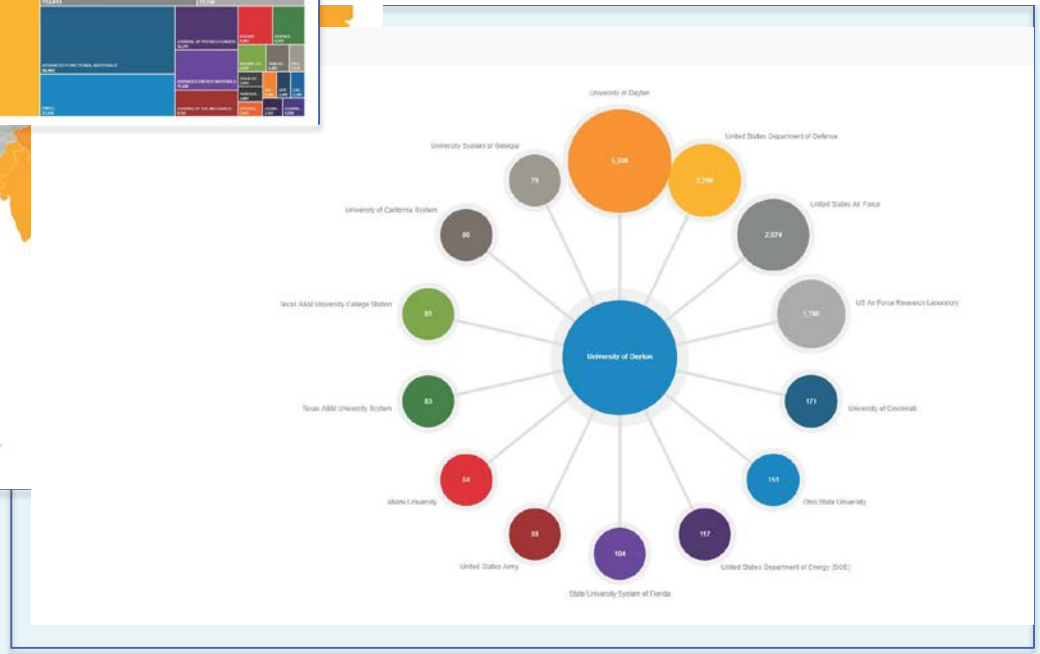


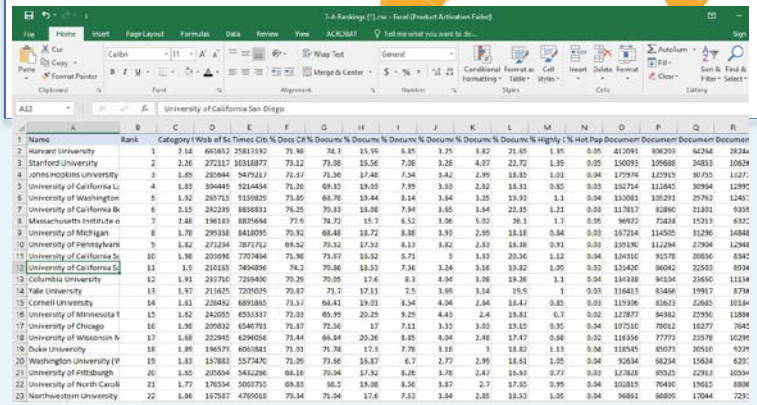
- Great for data regarding researchers, organizations (such as universities), research areas, funding agencies, publishers, collaborations, geographic locations, and more
- Set citation notifications, download large datasets, export data visualizations, etc.
- Utilizes Researcher IDs (and now ORCID)

InCites: Great for Data Visualizations and Exporting Data Sets



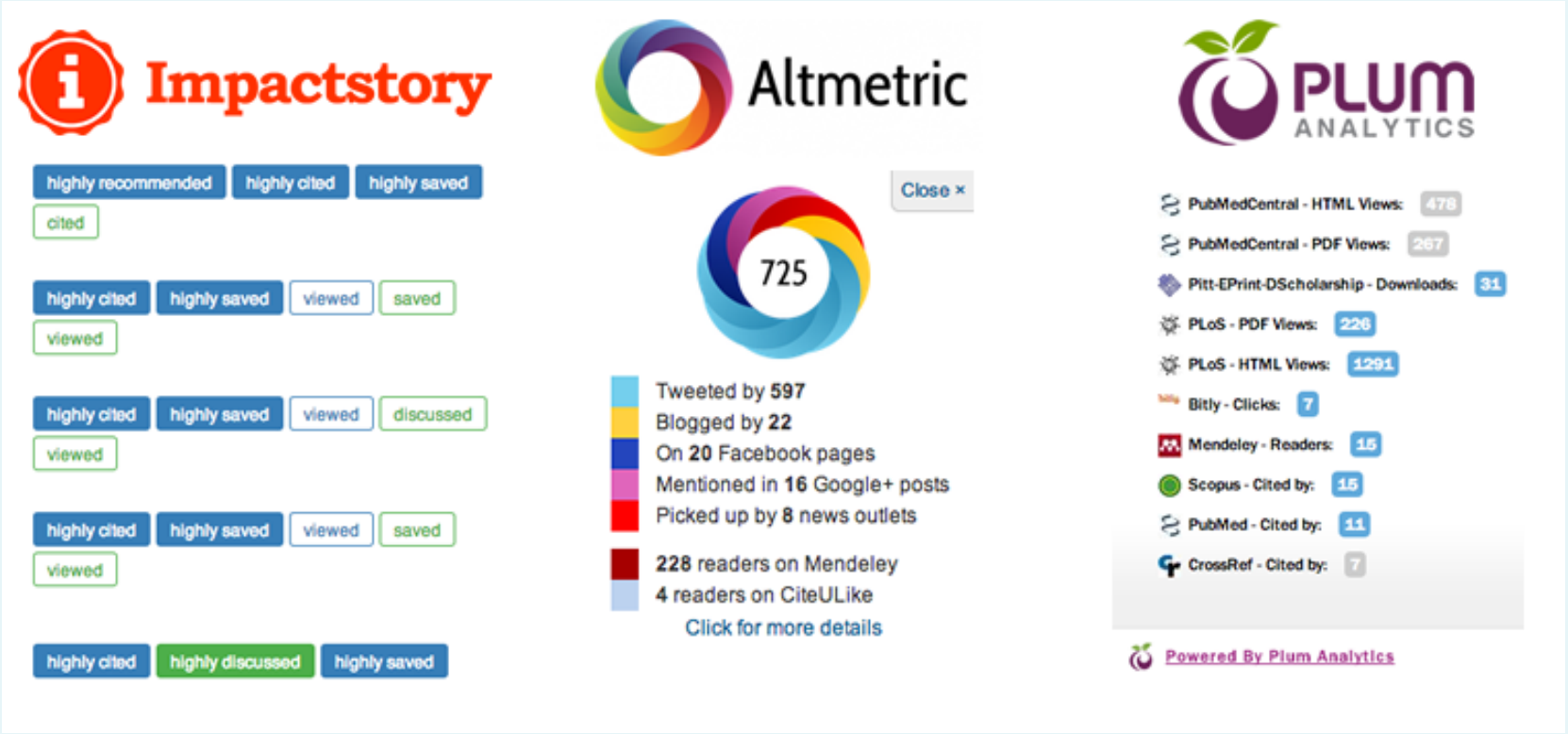






- Set citation notifications, download large datasets, etc.

Alternative Metrics (Altmetric, Plum Analytics, ImpactStory)

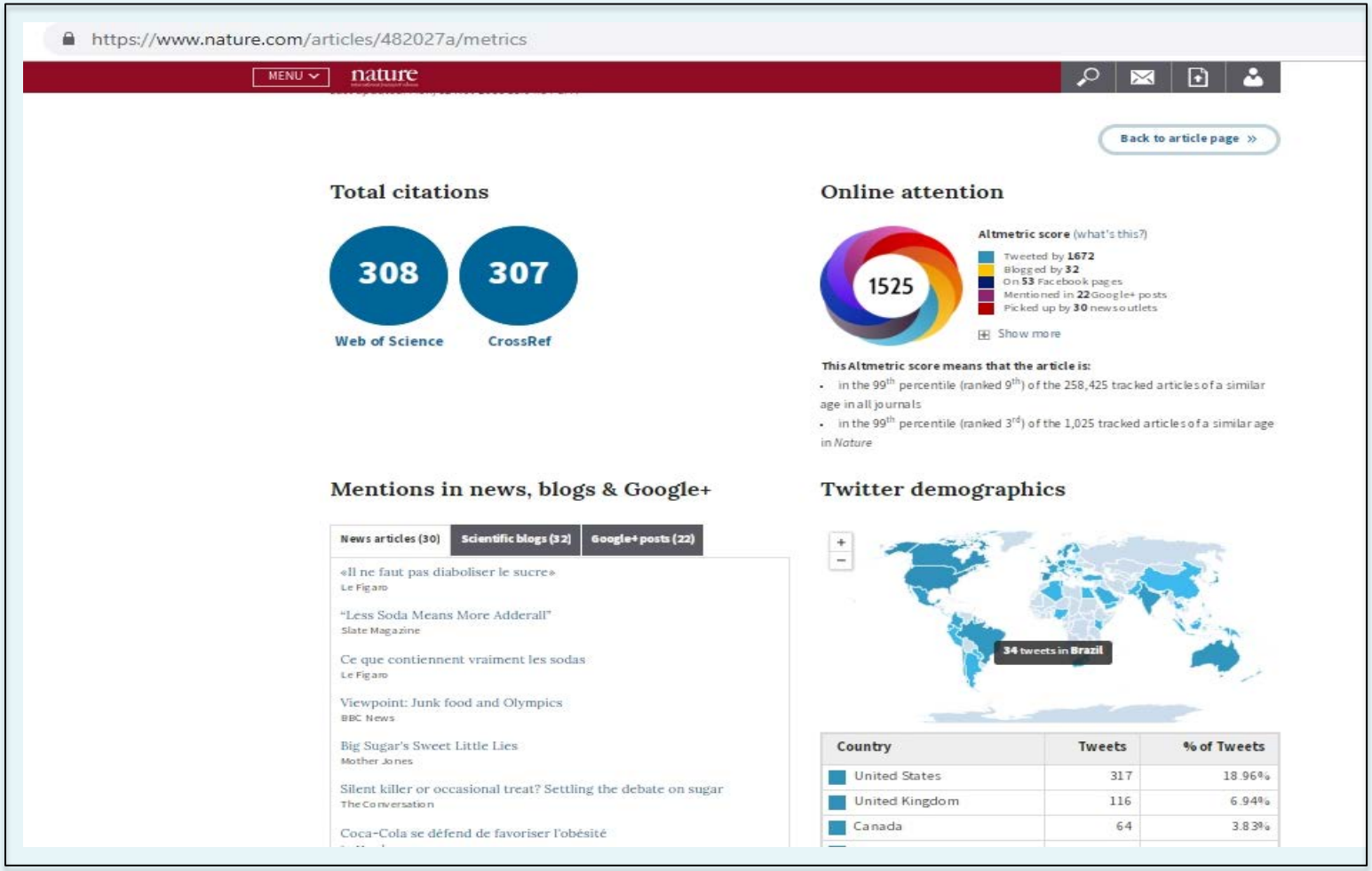


Can apply to: Journal articles, books, datasets, reviews, and any research output deposited to a repository that the company tracks.

Takes into account the volume of attention received by a research output across a number of online sources (e.g. popular news, wiki, Mendeley, social media, etc). Each source is weighted by the individual metric company.

Other ways to demonstrate impact:
Downloads, ratings and reviews (Amazon, Goodreads, etc.), monograph sales, legislation, software, social impact, etc.

Altmetric Bookmarklet



Free tool:
https://www.altmetric.com/products/free-tools/bookmarklet/

Strategies for Boosting Your Research Impact

researchsupporthub.northampton.ac.uk

Manage your author identity

How:
Create an ORCID and Researcher IDs
Link your output to those IDs
Create accurate metadata

Why:
Persistent identifiers distinguish you from other researchers, connect all of your scholarship, allows links between research activities and organizations, accounts for name changes, and is often required by publishers. Good metadata will make sure your data is discoverable and attributable.

Strategies for Boosting Your Research Impact (Contd.)

Make you research discoverable

How:

Utilize open repositories and journals when possible.

Why:

Making your scholarly output open may increase readership and citations.

Choose your best publication option

How:

Check journal metrics and compare journals in your field.
Be aware of your rights as an author
ThinkCheckSubmit.org

Why:

Avoid predatory journals and one-sided licenses. By publishing in quality journals you may increase the exposure of your research.

Track your metrics

How:

Search citations in the relevant databases and set up alerts to notify you of new citations.
Track Almetrics.

Why:

Assures that you have the most accurate metrics

How the Roesch Library Can Assist

Help you create a Researcher ID and ORCID and link your output to those accounts.

Create citation alerts

Assist in understanding journal metrics and finding the best places to publish and house your data

Help conceptualize your research field

Understand collaborative landscape

Create persistent identifiers for your research (such as DOIs)

Create accurate metadata schema

Help with issues of open access publishing

Create datasets and data visualizations based on research impact, citation metrics, etc.

… And much more!

Helpful Resources

libguides.udayton.edu/datamanagement – University of Dayton data management services research guide. Schedule a consultation or see various resources

www.metrics-toolkit.org – Great interactive explanation of many different citation impact indicators

clarivate.libguides.com/home - Clarivate InCites library guide with many tutorials and videos

https://clarivate.libguides.com/ld.php?content_id=25246846 – InCites at a glance

thinkchecksubmit.org - Provides resources to help researchers identify trusted journals

library.soton.ac.uk/ld.php?content_id=31958473 – Finding your h-index in Scopus

library.soton.ac.uk/ld.php?content_id=31958474 – Finding your h-index in Google Scholar

library.soton.ac.uk/ld.php?content_id=31958472 – Finding your h-index in Web of Science

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