# Citation Indexes: The Paradox of Quality

Entre Pares
Puebla
11 September, 2018



Michael Levine-Clark
University of Denver



## Discovery Landscape

- Discovery System (EDS, Primo, Summon)
  - Broad range of scholarly and popular content
- Abstracting and Indexing (A&I) Tool (PsycInfo, Biological Abstracts, EBSCO Academic Search Complete)
  - Limited content (either by subject or to scholarly material)
- Citation Index (Scopus, Web of Science)
  - High-quality scholarly content
- Academic Search Engine (Google Scholar)
  - Broad range of scholarly content

## Citation Searching

- Backward, through citations, to what came before
  - "Foundational" work

- Forward, through works that cite your article, to what comes after
  - Work that builds on your work (which builds on that foundation)

Google Scholar, Scopus, Web of Science

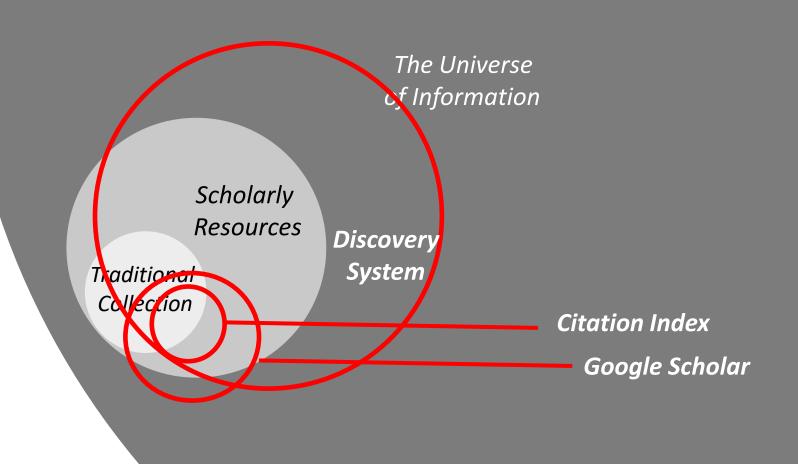
# Citations as Proxy for Quality

### Not the intended use

- Used to judge journal quality
- Used to judge article quality
- Used to judge the researcher
- Used in tenure and promotion decisions

# Library Discovery in Context

# We concentrate our efforts on a very small portion of a huge potential collection



#### TREND ANALYSIS: JOURNAL ARTICLE SEARCH

#### TREND FROM 2005 – 2018

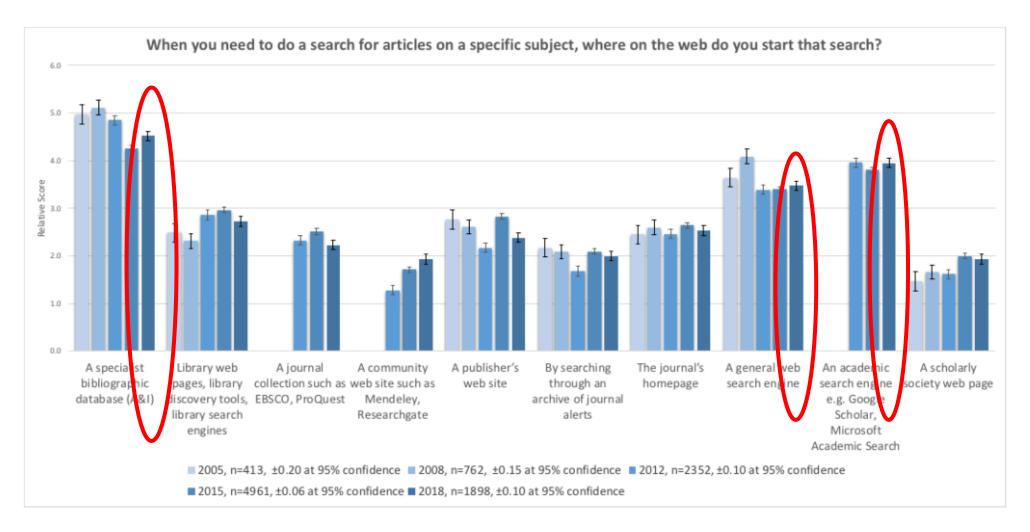


Figure 1 - Search, long-term demographic mix, see Methodology

Tracy Gardner and Simon Inger, "How Readers Discover Content in Scholarly Publications: Trends in Reader Behaviour from 2005 to 2018," Renew Publishing Consultants, 2018. renew.pub/discovery2018 (accessed September 5, 2018)

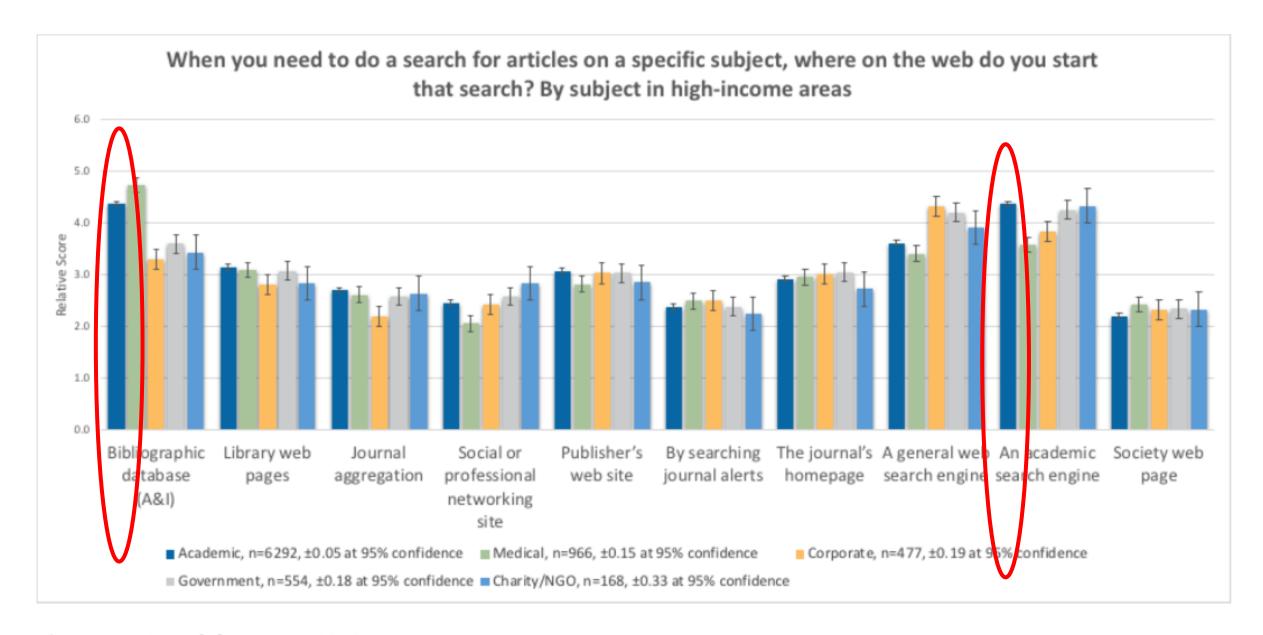


Figure 11 - Search by sector, 2018

# Citation Indexes

## WEB OF SCIENCE®

- 1900-present
- 20,300 journals (plus books and conference proceedings)
- 71 million records



- 1969-present (plus selected records back to 1788)
- 21,950 journals (plus books, conference proceedings, book series)
- 69 million records

Google Scholar



## WEB OF SCIENCE"

- Strongest in sciences and engineering
- Focus is on high impact journal articles
- Book, conference coverage is increasing
- Mostly English-language



- Broader subject coverage
- More conference proceedings
- More languages

# Google Scholar

- Broadest subject coverage
- All types of scholarly content
- All languages

# Terms and Concepts

Citation	A reference to another published work				
Self Citation	A reference to a publication by one of the authors				
Cited Work	A publication to which a citation refers				

Impact Factor (IF)	A measure at the <i>journal</i> level, of the annual average number of citations to articles in that journal (CiteScore in Scopus, Journal Impact Factor in Web of Science)		
h-Index	An $author$ -level measure, which calculates the value $h$ based on $h$ papers, each of which has been cited in other papers at least $h$ times		
i10-Index	An <i>author</i> -level measure, which counts the number of publications with 10 or more citations (only used in Google Scholar)		

## *h*-Index

An *author*-level measure, which calculates the value *h* based on *h* papers, each of which has been cited in other papers at least *h* times

- Author One
  - Paper One: 10 citations
  - Paper Two: 9 citations
  - Paper Three: 8 citations
  - Paper Four: 5 citations
  - Paper Five: 2 citations
- h-Index=4: 4 papers with 4 or more citations

- Author Two
  - Paper One: 10 citations
  - Paper Two: 9 citations
  - Paper Three: 8 citations
  - Paper Four: 3 citations
  - Paper Five: 2 citations
- h-Index=3: 3 papers with 3 or more citations

## Two Processes

### From Paper to Citation(s)

- Look for citations to a paper (what came after)
- Useful for understanding how a publication has influenced the field
- Useful for evaluating the impact of an author/scholar

### From Paper to Cited Work(s)

- Look for the works cited in a paper (what came before)
- Useful for understanding how a publication was influenced by the literature in the field
- A useful way of discovering additional sources to read/evaluate

# **Disciplinary Differences**

- Citation patterns vary tremendously by discipline
  - Higher *h*-index, i10-index, and IF in some subjects than others
  - Can only compare within a subject

Subject	Mean h-index
Clinical Medicine	95.87
Chemistry	81.52
Physics	60.71
Social Sciences	40.03
Economics/Business	31
Mathematics	30.84
Computer Science	19.9

Malesios, C.C. & Psarakis, S. "Comparison of the *h*-index for different fields of research using bootstrap methodology," *Quality & Quantity* (2014) 48: 521. https://doi.org/10.1007/s11135-012-9785-1

# An Example of Coverage for One Article

#### Portal

Volume 14, Issue 3, July 2014, Pages 425-437

Access to everything: Building the future academic library collection (Article)

Levine-Clark, M. 🖂 🙎

University of Denver Libraries, United States

- Web of Science 10 citations
  - 9 articles
  - 0 unique

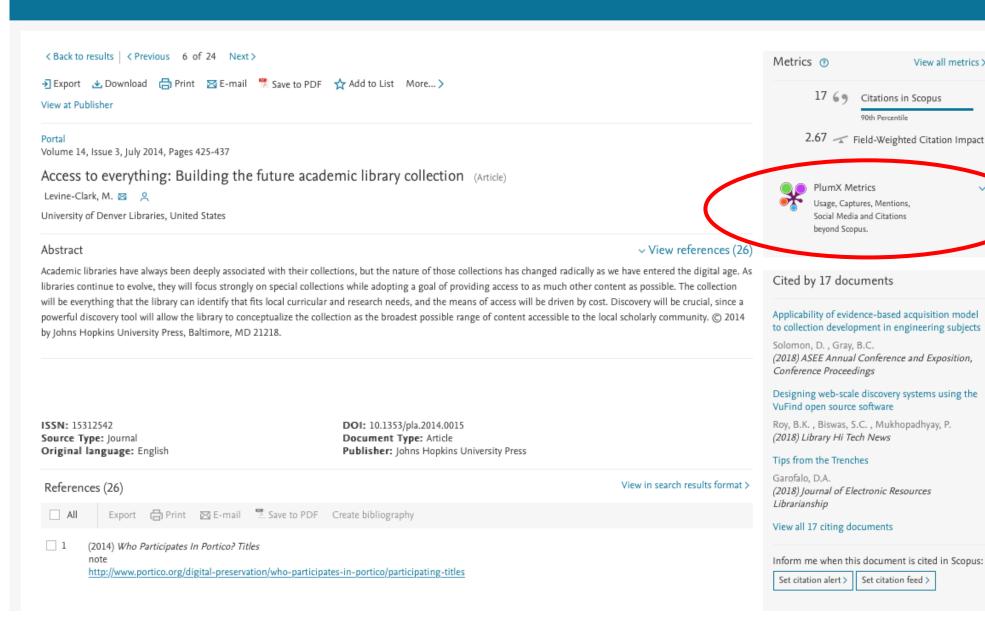
- Scopus 17 citations
  - 15 articles, 1 book, 1 conference proceeding
  - 1 unique

- Google Scholar 39 citations
  - 33 items (two with multiple listings)
  - 16 unique
  - 21 articles
  - 5 doctoral dissertations
  - 4 conference proceedings
  - 1 book
  - 1 course paper
  - 1 master's thesis

SciVal a

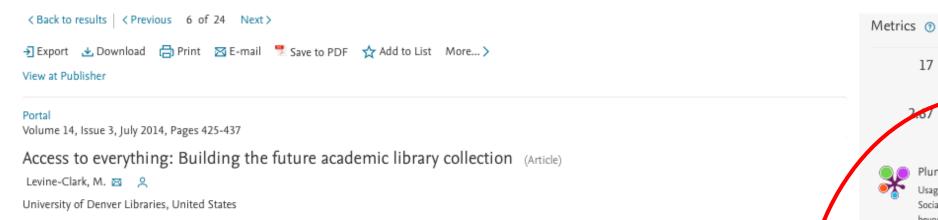
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#### Document details



Scopus Search Sources Alerts Lists Help ✓ SciVal →

#### Document details



Abstract View references (26)

Academic libraries have always been deeply associated with their collections, but the nature of those collections has changed radically as we have entered the digital age. As libraries continue to evolve, they will focus strongly on special collections while adopting a goal of providing access to as much other content as possible. The collection will be everything that the library can identify that fits local curricular and research needs, and the means of access will be driven by cost. Discovery will be crucial, since a powerful discovery tool will allow the library to conceptualize the collection as the broadest possible range of content accessible to the local scholarly community. 2014 by Johns Hopkins University Press, Baltimore, MD 21218.

ISSN: 15312542 DOI: 10.1353/pla.2014.0015
Source Type: Journal Document Type: Article

Original language: English Publisher: Johns Hopkins University Press

References (26) View in search results format >

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	17 67	Citations in Scopus
		90th Percentile
	2.01 -	Field-Weighted Citation Impact
	PlumX M	etrics
*	Usage, Cap	tures, Mentions,
•	Social Med	ia and Citations
	beyond Sco	pus.
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Clicks:		39
Abstract \	/iews:	1237
Link-outs	2	508
Full Text \	Views:	1
Captures	5	
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#### **Metric Details**

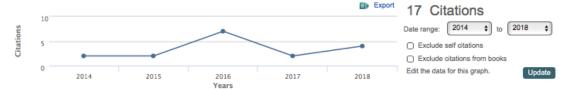
Access to everything: Building the future academic library collection Back to article (2014) Portal, 14(3), pp. 425-437

#### Scopus Metrics @

Citation Count 99
17
Cited by in Scopus



#### Cited by



#### Benchmarking @

Measures of activity relative to specific research domains, based on cited by in Scopus

Compared to Social Sciences † articles of the same age and document type

All Citations 90 TH PERCENTILE



#### Usage

Bitly - Clicks: 39
EBSCO - Abstract Views: 1237
EBSCO - Link-outs: 508
EBSCO - Full Text Views: 1

#### Captures

EBSCO - Exports-Saves: 112

Mendeley - Readers: 46

Mendeley - Readers: 41

Mendeley - Readers: 41

Mendeley - Readers: 4

Mendeley - Readers: 4

#### Social Media

Twitter - Tweets: 7

#### Citations

CrossRef - Citation 9 Indexes: Email

3 About Snowball Metrics

#### **Citation Network**

In Web of Science Core Collection

10

Times Cited

Create Citation Alert

All Times Cited Counts

11 in All Databases

See more counts

21

Cited References

**View Related Records** 

#### Most recently cited by:

Adeyinka, Tella; Dare, Oseni O.; Adebisi, Oguntayo S.; et al.

Perception and Usage Pattern of e-books among Library and Information Science Students in Selected Universities in Nigeria.

DESIDOC JOURNAL OF LIBRARY & INFORMATION TECHNOLOGY (2018)

McCollough, Aaron.

Does It Make a Sound: Are Open Access Monographs Discoverable in Library Catalogs?.

PORTAL-LIBRARIES AND THE ACADEMY (2017)

View All

#### **Use in Web of Science**

Web of Science Usage Count

1

16

Last 180 Days Since 2013

Learn more

#### Citing Articles: 9

(from All Databases)

For: Access to Everything: Building th e Future Academic Library Collection ...More

# Research Domains SCIENCE TECHNOLOGY (9) SOCIAL SCIENCES (1) Refine



[PDF] from jhu.edu



#### Access to everything: Building the future academic library collection

Authors Michael Levine-Clark

Publication date 2014

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Journal portal: Libraries and the Academy

Volume 14

Issue 3

Pages 425-437

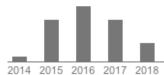
Publisher Johns Hopkins University Press

Description Academic libraries have always been deeply associated with their collections, but the

nature of those collections has changed radically as we have entered the digital age. As libraries continue to evolve, they will focus strongly on special collections while adopting a goal of providing access to as much other content as possible. The collection will be everything that the library can identify that fits local curricular and research needs, and the means of access will be driven by cost. Discovery will be crucial, since a powerful discovery tool will allow the library to conceptualize the collection as the broadest

possible range of content accessible to the local scholarly community.

Total citations Cited by 39



Scholar articles Access to everything: Building the future academic library collection

M Levine-Clark - portal: Libraries and the Academy, 2014

Cited by 39 Related articles All 7 versions



# Another Article

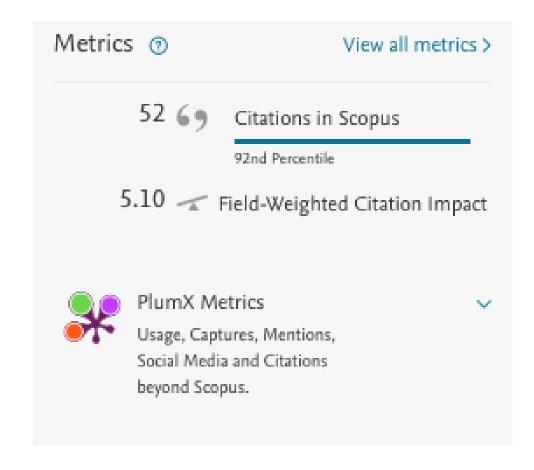
#### Collection Building

Volume 26, Issue 1, 2007, Pages 7-14

Electronic books and the humanities: A survey at the University of Denver (Article)

Levine-Clark, M. M.

- Web of Science
  - Journal not indexed
- Scopus
  - 52 citations
- Google Scholar
  - 104 citations



# Another Example

Patrimonio bibliográfico en la biblioteca pública: memorias locales e identidades nacionales

Jaramillo, O., Marín-Agudelo, S.-A.

2014, Profesional de la Informacion, (4), 425-432

- Web of Science
  - Journal not indexed

- Scopus
  - 2 citations
  - 0 unique
  - 2 articles

- Google Scholar
  - 16 citations (2 with multiple listings)
  - 8 articles
  - 3 thesis or dissertation
  - 1 conference paper
  - 2 unclear

# Searching by Author

## Kutateladze, Andrei

- Web of Science
  - Searched on "Kutateladze, Andrei"
  - 68 results
  - 730 total citations
  - *h*-index = 15

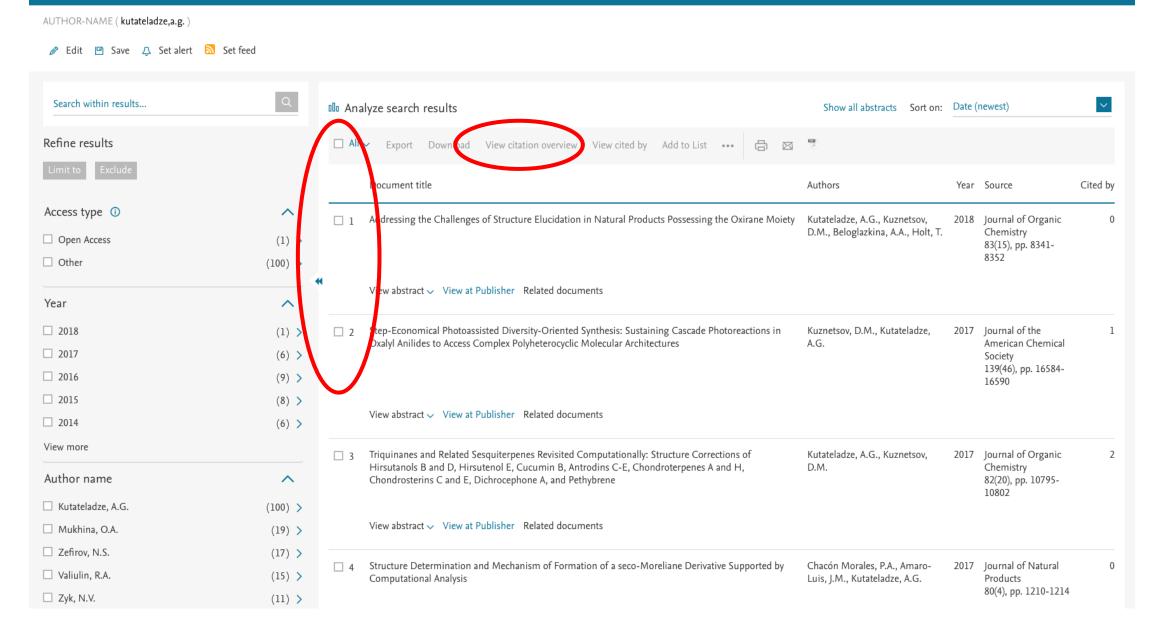
- Scopus
  - Searched on "Kutateladze, A.G."
  - 101 results
  - 1,331 total citations
  - h-index = 21

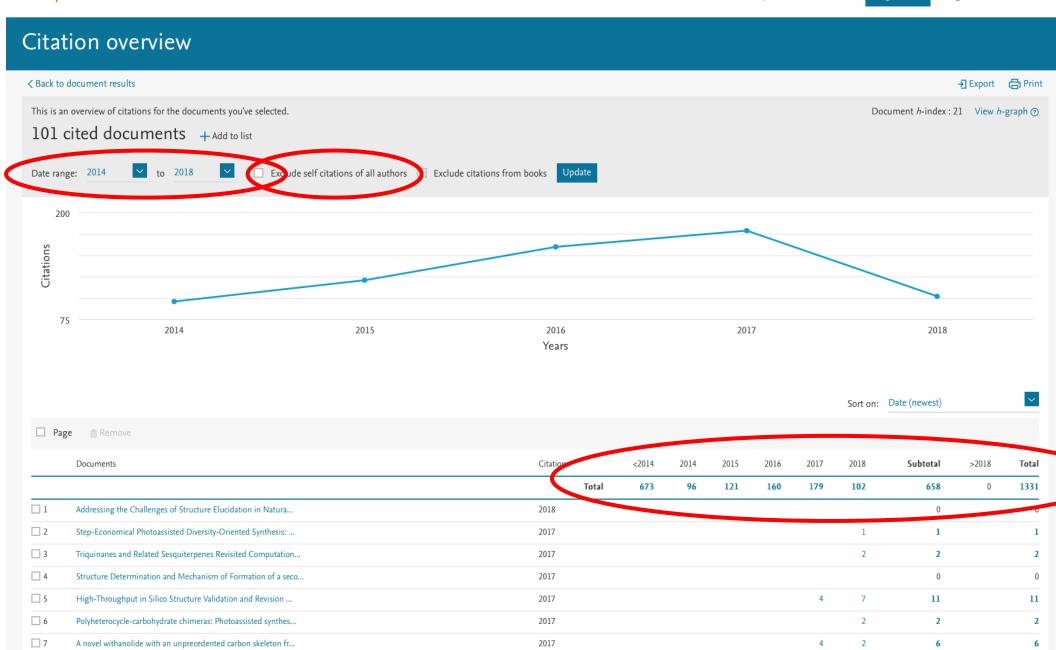
- Google Scholar
  - Searched on "Kutateladze, AG"
  - About 6,590 results

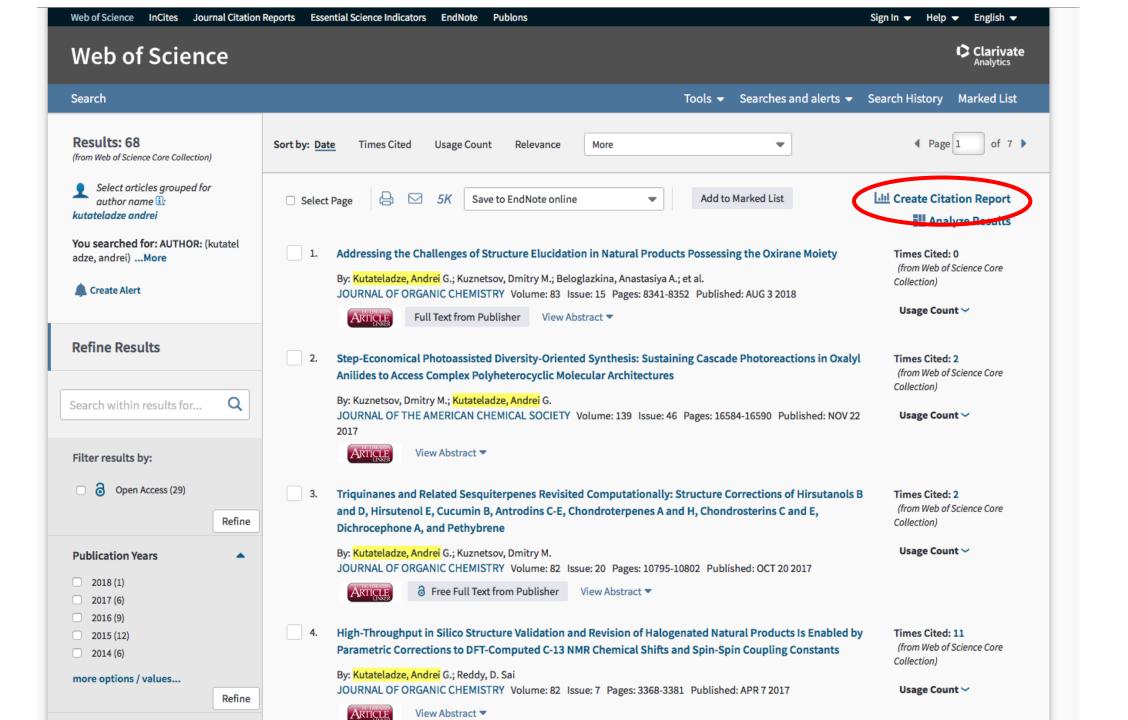
Scopus SciVal 🗷 Register > Login V

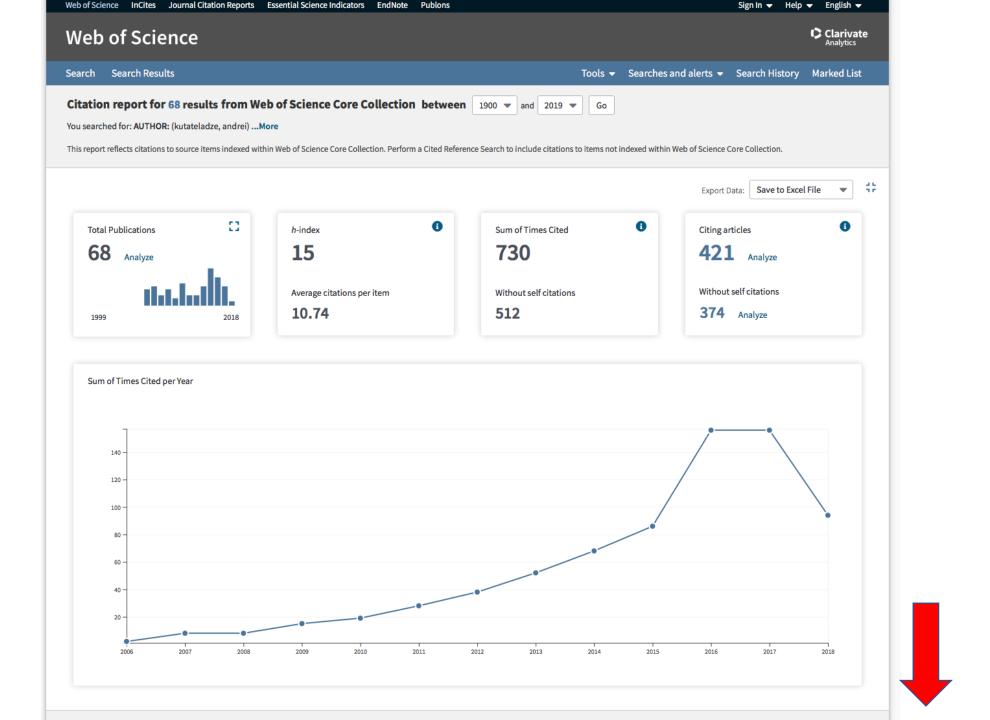
#### 101 document results

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		2015	2016	2017	2018	2019	Total	Average Citations per Year
_	e the checkboxes to remove individual items from this Citation Report  estrict to items published between 1900 • and 2019 • Go	86	156	156	94	0	730	56.15
1.	Interaction of Radical Pairs Through-Bond and Through-Space: Scope and Limitations of the Point-Dipole Approximation in Electron Paramagnetic Resonance Spectroscopy  By: Riplinger, Christoph; Kao, Joseph P. Y.; Rosen, Gerald M.; et al.  JOURNAL OF THE AMERICAN CHEMICAL SOCIETY Volume: 131 Issue: 29 Pages: 10092-10106 Published: JUL 29 2009	8	9	6	4	0	61	6.10
2.	Rapid Photoassisted Access to N,O,S-Polyheterocycles with Benzoazocine and Hydroquinoline Cores: Intramolecular Cycloadditions of Photogenerated Azaxylylenes  By: Mukhina, Olga A.; Kumar, N. N. Bhuvan; Arisco, Teresa M.; et al.  ANGEWANDTE CHEMIE-INTERNATIONAL EDITION Volume: 50 Issue: 40 Pages: 9423-9428 Published: 2011	5	8	10	5	0	38	4.75
3.	Photoassisted Synthesis of Enantiopure Alkaloid Mimics Possessing Unprecedented Polyheterocyclic Cores  By: Kumar, N. N. Bhuvan; Mukhina, Olga A.; Kutateladze, Andrei G.  JOURNAL OF THE AMERICAN CHEMICAL SOCIETY Volume: 135 Issue: 26 Pages: 9608-9611 Published: JUL 3 2013	8	9	7	4	0	37	6.17
4.	Minimalist Relativistic Force Field: Prediction of Proton-Proton Coupling Constants in H-1 NMR Spectra Is Perfected with NBO Hybridization Parameters  By: Kutateladze, Andrei G.; Mukhina, Olga A.  JOURNAL OF ORGANIC CHEMISTRY Volume: 80 Issue: 10 Pages: 5218-5225 Published: MAY 15 2015	5	11	12	5	0	33	8.25
5.	Relativistic Force Field: Parametric Computations of Proton-Proton Coupling Constants in H-1 NMR Spectra  By: Kutateladze, Andrei G.; Mukhina, Olga A.  JOURNAL OF ORGANIC CHEMISTRY Volume: 79 Issue: 17 Pages: 8397-8406 Published: SEP 5 2014	7	9	10	5	0	32	6.40
6.	Membrane insertion of the FYVE domain is modulated by pH  By: He, Ju; Vora, Mohsin; Haney, Rachel M.; et al.  PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS Volume: 76 Issue: 4 Pages: 852-860 Published: SEP 2009	1	5	3	2	0	30	3.00
7.	Relativistic Force Field: Parametrization of C-13-H-1 Nuclear Spin-Spin Coupling Constants  By: Kutateladze, Andrei G.; Mukhina, Olga A.  JOURNAL OF ORGANIC CHEMISTRY Volume: 80 Issue: 21 Pages: 10838-10848 Published: NOV 6 2015	0	8	13	5	0	26	6.50
8.	Harvesting the Strain Installed by a Paterno-Buchi Step in a Synthetically Useful Way: High-Yielding Photoprotolytic Oxametathesis in Polycyclic Systems							

# Google Scholar

- More results
  - Often multiple results for the same item (a pre-print and the final article, for instance)
  - For common names, not easy to group material together name authority control would be helpful
- Harder to analyze data
- Authors can create Google Scholar Profiles, which pull together their papers and allow some analysis



#### Gareth R. Eaton

<u>University of Denver</u> Verified email at du.edu

electron paramagnetic reso... spin relaxation instrumentation biophysics

FOLLOW

TITLE	CITED BY	YEAR
Proton magnetic resonance investigation of antiferromagnetic oxo-bridged ferric dimers and related high-spin monomeric ferric complexes GN La Mar, GR Eaton, RH Holm, FA Walker Journal of the American Chemical Society 95 (1), 63-75	279	1973
Use of the ESR half-field transition to determine the interspin distance and the orientation of the interspin vector in systems with two unpaired electrons SS Eaton, KM More, BM Sawant, GR Eaton Journal of the American Chemical Society 105 (22), 6560-6567	269	1983
NMR studies of boron hydrides and related compounds GR Eaton, WN Lipscomb WA Benjamin	209	1969
Interaction of spin labels with transition metals SS Eaton, GR Eaton Coordination Chemistry Reviews 26 (3), 207-262	207	1978
Quantitative Epr GR Eaton, SS Eaton, DP Barr, RT Weber Springer Science & Business Media	205	2010
EPR IMAGING and IN VIVO EPR: 0 GR Eaton CRC press	204	2018
Rotation of phenyl rings in metal complexes or substituted tetraprientylporphynness SS Eaton, GR Fellouge Forms American Chemical Society 97 (13), 3660-3666	186	1975
Electrochemical Generation and Electron Paramagnetic Resonance Studies of C-60, C2-60, and C3-60The efficiency of the electrochemical generation of C60 anions (in 4: 1 MM KHALED, RT CARLIN, PC TRULOVE, GR EATON, SS EATON ChemInform 25 (33)	179 *	1994
Electrochemical generation and electron paramagnetic resonance studies of C60-, C602-, and C603  MM Khaled, RT Carlin, PC Trulove, GR Eaton, SS Eaton	<del>179</del>	1994
Distance measurements in biological Cycleme by EPR  LJ Berliner, SS Eaton, GR Eaton  Springer Science & Business Media	174	2006



## Scopus

- 323 documents
- 7,506 citations
- h-index = 45

#### • Web of Science

- 104 documents
- 1,197 citations
- *h*-index = 19

Articles 1-495



# Subject Differences

- Web of Science strongest in sciences, with less coverage in humanities and social sciences
- Scopus and Google Scholar coverage across all disciplines (though generally weaker in humanities)

 Generally, for any subject, there is more coverage in Google Scholar than Scopus than Web of Science

## Citation Differences

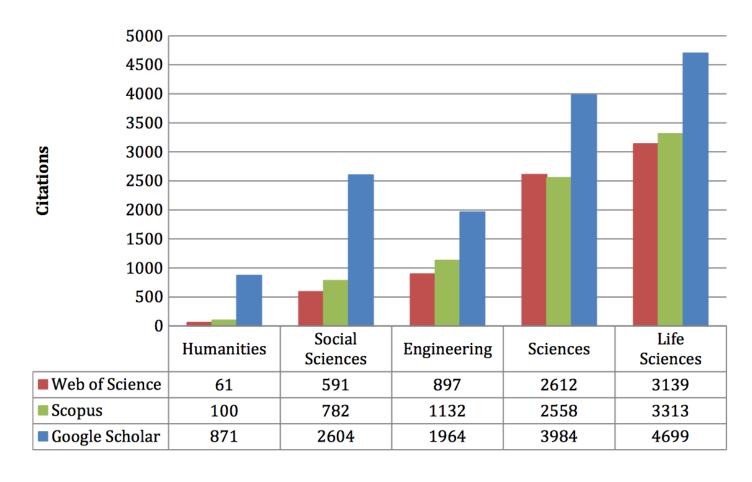


Fig. 4 Average number of citations per academic across five disciplines and three databases, July 2015

Anne-Wil Harzing and Satu Alakangas, "Google Scholar, Scopus and the Web of Science: a longitudinal and cross-disciplinary comparison," *Scientometrics* (2016) 106:787–804 DOI 10.1007/s11192-015-1798-9

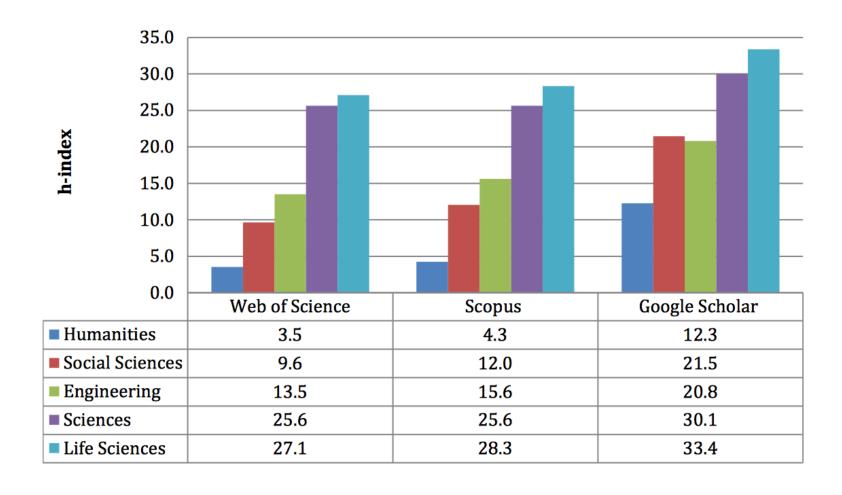


Fig. 6 Average h-index per academic for five different disciplines in three different databases, July 2015

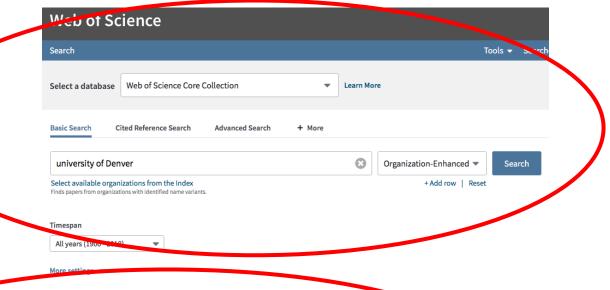
Anne-Wil Harzing and Satu Alakangas, "Google Scholar, Scopus and the Web of Science: a longitudinal and cross-disciplinary comparison," *Scientometrics* (2016) 106:787–804 DOI 10.1007/s11192-015-1798-9

# Searching by Institution

## "University of Denver"

| Search | S

- Scopus
  - 12,824 results
- Web of Science
  - 13,544 results
- Google Scholar
  - "about 127,000 results"



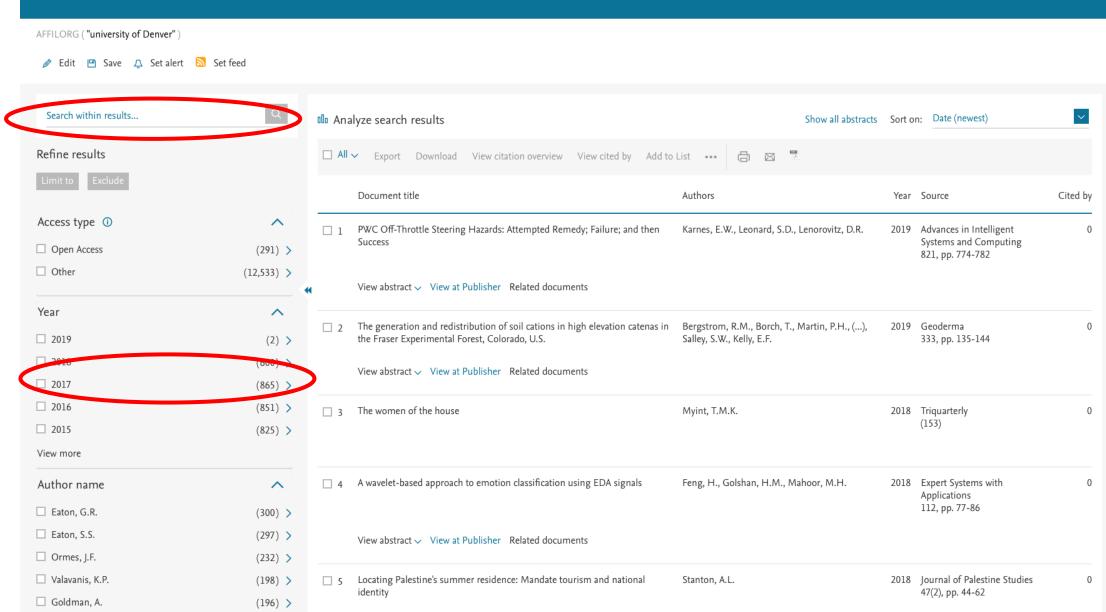


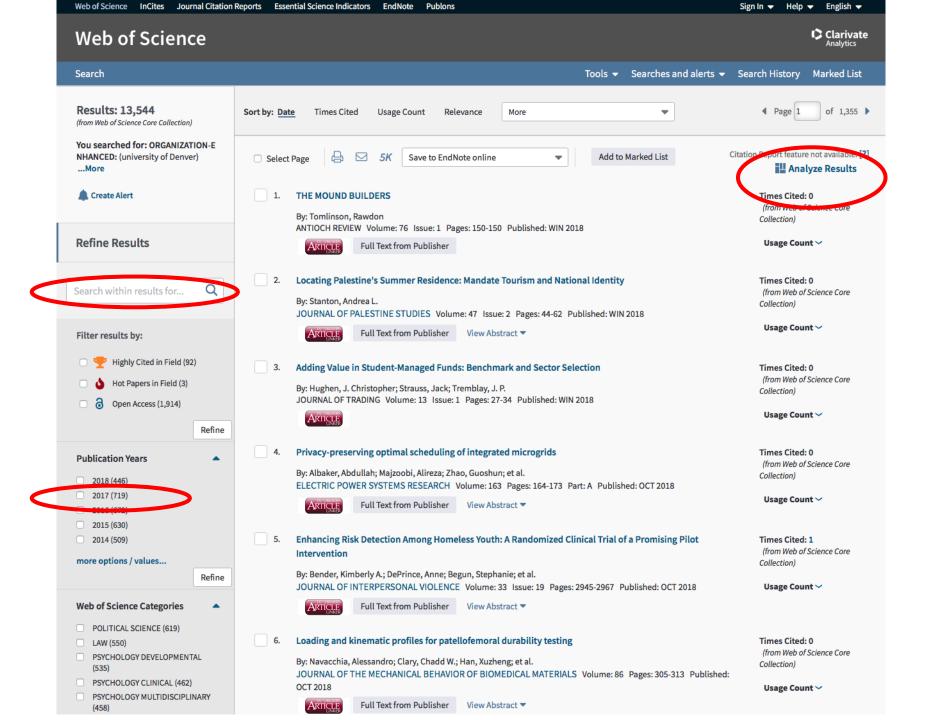
Lists

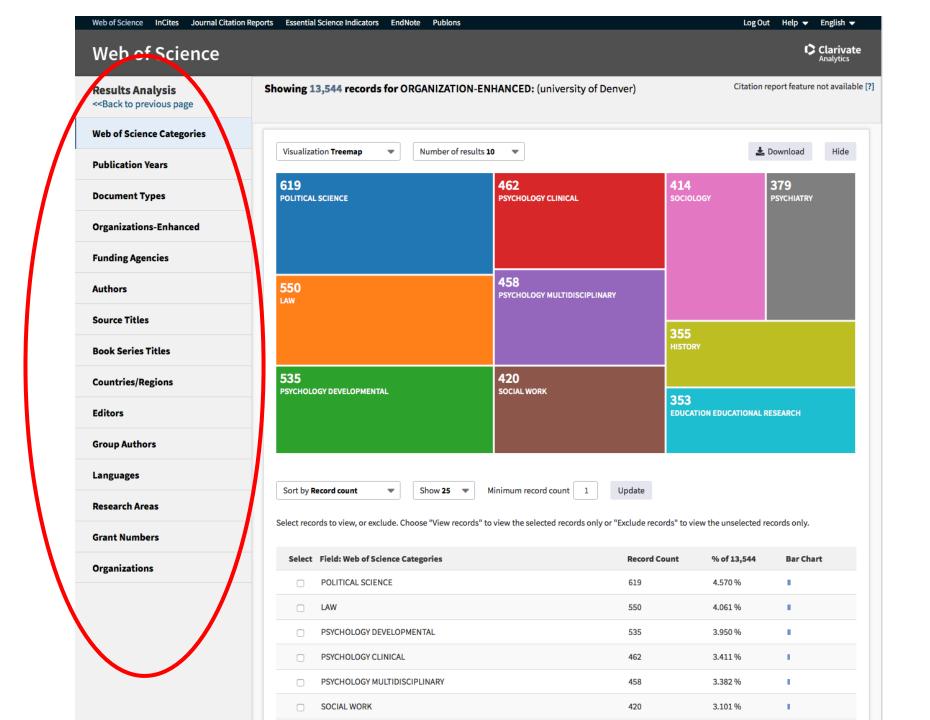
### 12,824 document results

View secondary documents View 84 patent results

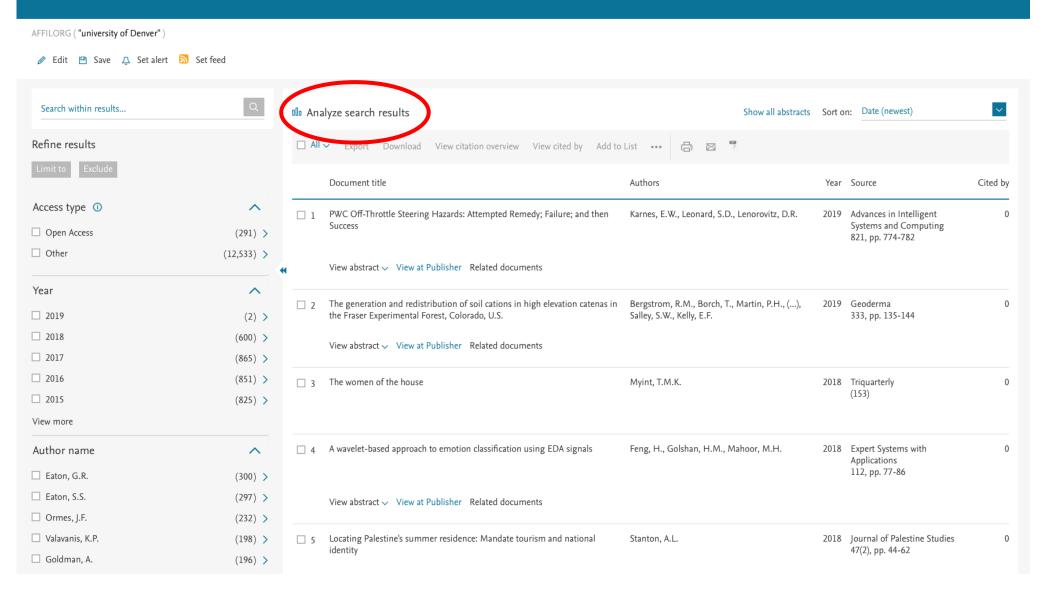
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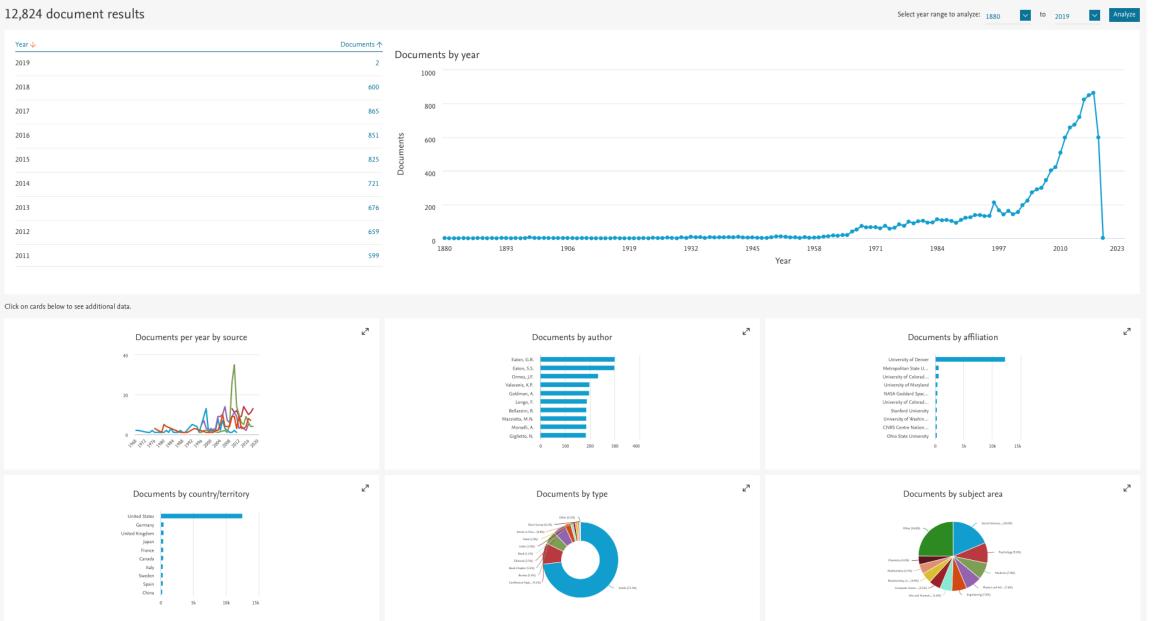


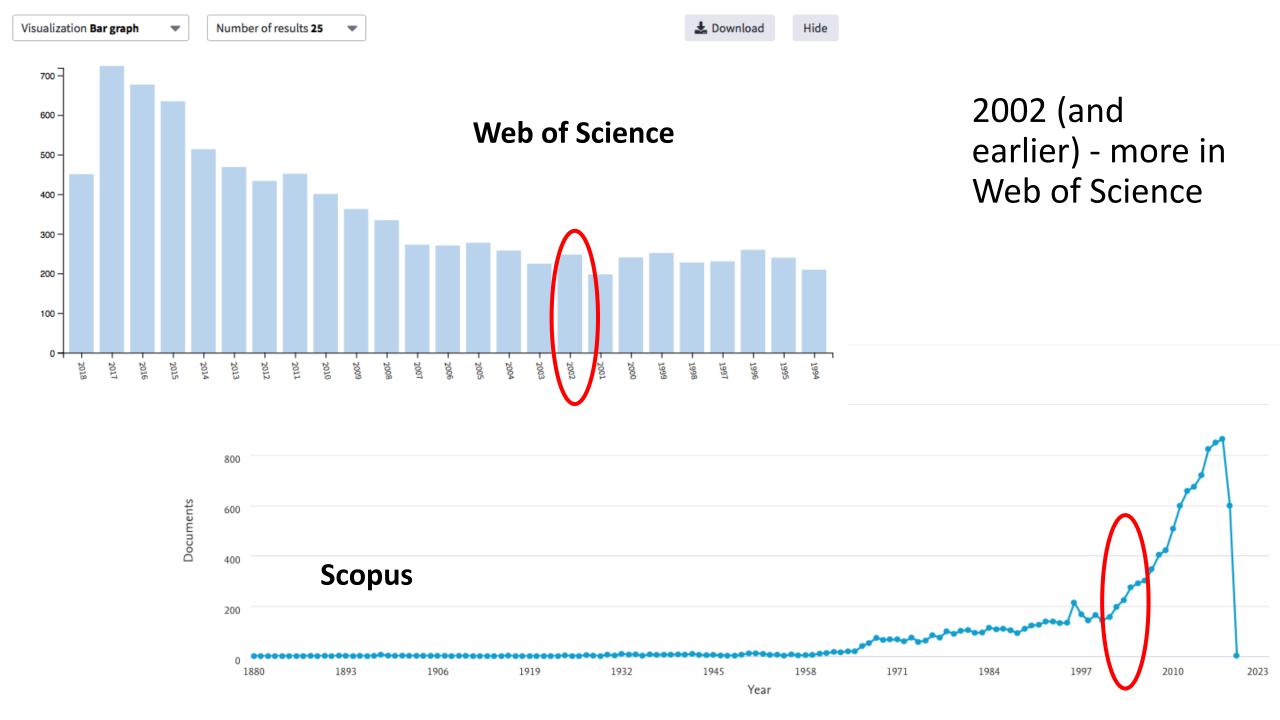
### 12,824 document results



AFFILORG ("university of Denver")

AFFILORG ("university of Denver")





"University of Denver"

Q



### Articles

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Since 2018

Since 2017

Since 2014

Custom range...

### Sort by relevance

Sort by date

- ✓ include patents
- include citations
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User profiles for:

Any time

Since 2018

Since 2017

Since 2014

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2017 — 2017

Search

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### nissions

67, 1995 - Google Patents ng and recording of NO, CO, CO 2, otor vehicles (28) utilizes a source nd includes a detector unit (16) ...



**Articles** 

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Any time

Since 2018

Since 2017

Since 2014

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#### Sort by relevance

Sort by date

include patents✓ include citations



### [BOOK] The enlightened eye: Qualitative inquiry and the enhancement of educational practice

EW Eisner - 2017 - books.google.com

... Teachers as moral educators: A study of caring (Unpublished doc- toral dissertation). **University of Denver**, Denver, CO. Barone, T.(2000) ... **University of Denver**, Denver, CO. Creswell, JW (2013). Qualitative inquiry and research design: Choosing among five ap- proaches ...

#### [BOOK] Rhetorical criticism: Exploration and practice

SK Foss - 2017 - books.google.com

... This book is also a product of the questions, insights, and essays of criticism of the students in my rhetorical criticism courses at the **University of Denver**, the University of Oregon, Ohio State Uni- versity, and the University of Colorado Denver ...

☆ 99 Cited by 1866 Related articles ⇒>

#### 2017 Denver Law Pipeline Conference Friday, March 31, 9 am to 5 pm

M Bans - 2017 - law.du.edu

... and America's Promise of Equality: Why Laws (and a Law Degree) Matter Sahar Aziz, Professor, Texas A&M University School of Law Edgar Barraza, Attorney, Rollin Braswell Fisher LLC, Denver, Colorado Christina Brown, Immigration Attorney, Denver, Colorado Vinay Harpalani, Associate ...

☆ 99 🕸

#### [BOOK] Reframing organizations: Artistry, choice, and leadership

LG Bolman, TE Deal - 2017 - books.google.com

... Page 16. FACK 10: 42: 38 Page xvi 05/23/2017 Harvard and Outward Bound, provided many thoughtful comments on the manuscript. Susan Griggs, of the **University of Denver**, offered a provocative critique of our handling of issues related to gender and leadership ...

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#### [BOOK] Social work treatment: Interlocking theoretical approaches

FJ Turner - 2017 - books.google.com

... Kelley, PhD, School of Social Work, University of Iowa Dennis Kimberley, MSW, PhD, School of Social Work, Memorial University Kate Kitchen, MSW, RSW, Practitioner, Toronto, Ontario Donald Krill, MSW, PhD, Graduate School of Social Work, **University of Denver** Judith AB ...

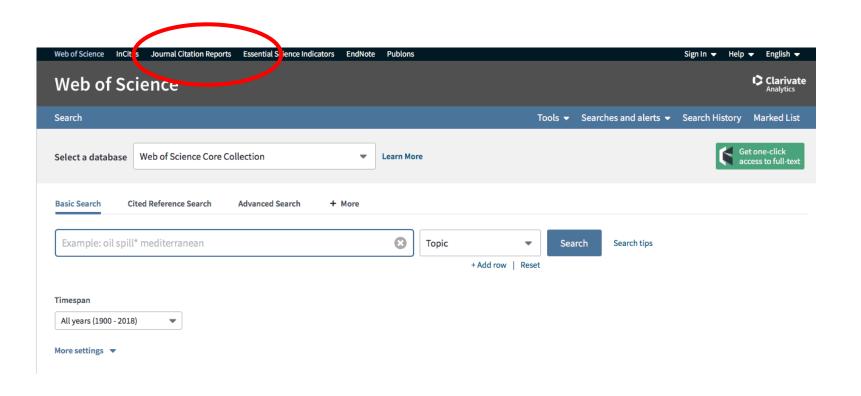
☆ 99 Cited by 528 Related articles All 3 versions ≫

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# Journal Analysis

### Scopus

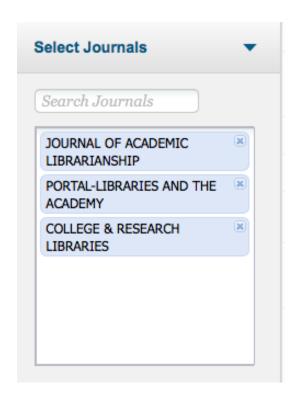




### Compare sources

Compare sources Search for and choose up to 10 sources to analyze and compare. 🗈 Export | 🚇 Print | 💌 Email Source Title - Limit to: All Subject areas a collection building Show: ⊙ CiteScore ○ SJR ○ SNIP ○ ISSN 1 sources found About Compare sources calculations \_\_\_ Chart TTT Table Source à CiteScore ∨ 0.60 Collection Building SJR CiteScore Citations Documents % Not cited % Reviews CiteScore Publication by year 2.50 2.25 2.00 1.75 1.25 1.00 0.75 0.50 0.25 

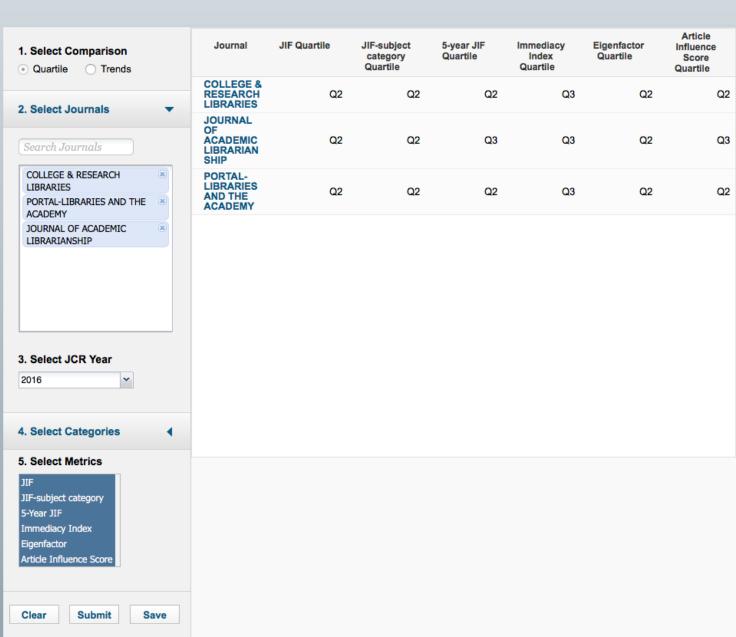




#### Journal Titles Ranked by Impact Factor

Compare Selected Journals			Add Journals to New or Existing List			Customize Indicators	
Select All		Full Journal Title		Total Cites	Journal Impact Factor ▼	Eigenfactor Score	
	1	COLLEGE & LIBRARIES	RESEARCH	1,121	1.626	0.00084	
	2	PORTAL-LIBI ACADEMY	RARIES AND THE	551	1.473	0.00054	
	3	JOURNAL OF LIBRARIANS		1,449	1.459	0.00128	

### **Compare Journals**





# Google Scholar

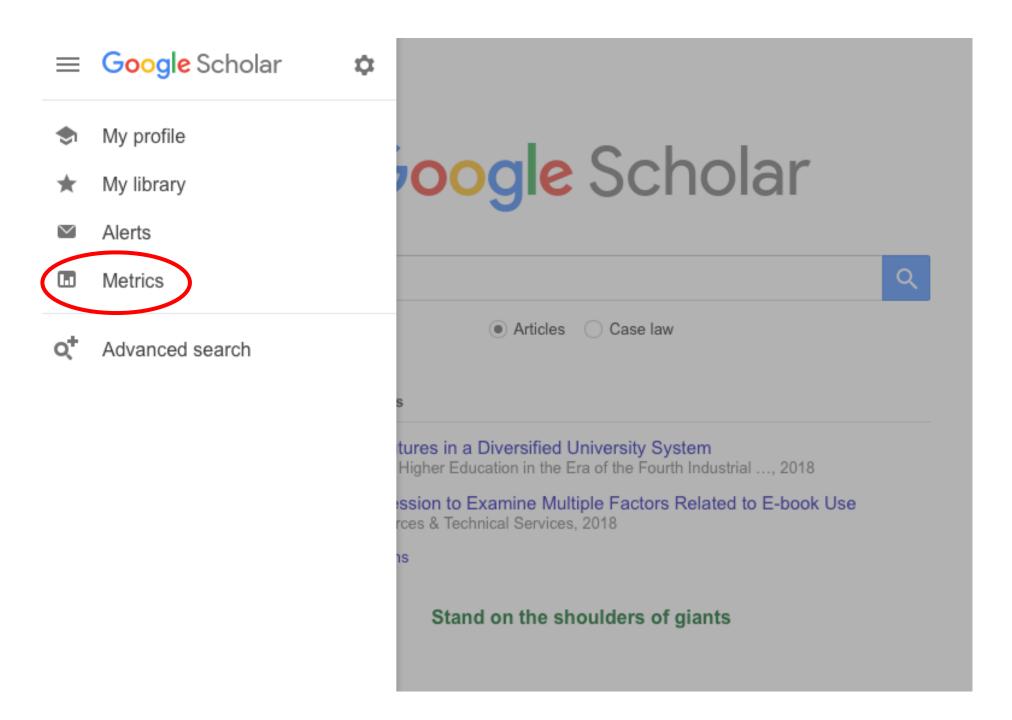
	Q
Articles	
Recommended articles	
Academic Library Futures in a Diversified University System L Dempsey, C Malpas - Higher Education in the Era of the Fourth Industrial, 2018	

See all recommendations

K Kohn - Library Resources & Technical Services, 2018

Stand on the shoulders of giants

Using Logistic Regression to Examine Multiple Factors Related to E-book Use







### Top publications

## Categories \* Business, Economics & Management Chemical & Material Sciences Engineering & Computer Science Health & Medical Sciences Humanities, Literature & Arts Life Sciences & Earth Sciences Physics & Mathematics Social Sciences 6. Cell

### Top publications

ubca	ategories	Educational Psychology & Counseling	Library & Information Science	edian
Academic & Psychological Testing  African Studies & History  Anthropology  Archaeology  Architecture  Asian Studies & History		Educational Technology Environmental & Occupational Medicine	Middle Lastom & Islamic Studies  Military Studies  Paleontology  Political Science	52 24 27
		Environmental Law & Policy  Epistemology & Scientific History  Ethics	Public Health  Public Policy & Administration	
Bioeth Canad	nics dian Studies & History	European Law Family Studies	Science & Engineering Education Sex & Sexuality	28 17 1 14
Cognit	se Studies & History tive Science	Feminism & Women's Studies Forensic Science	Social Sciences (general) Social Work	
Criminology, Criminal Law & Policing  Development Economics  Diplomacy & International Relations  Early Childhood Education  Economic History  Education  Educational Administration		Geography & Cartography  Health Policy & Medical Law  Higher Education	Sociology Special Education Sustainable Development	3 04
		History Human Migration Human Resources & Organizations	Teaching & Teacher Education Technology Law Urban Studies & Planning	01 4 4
		International Law Law	<u></u>	0_4
16.	Land Use Policy		<u>59</u>	77
17.	American Sociological Review		<u>58</u>	87
18.	Journal of Youth and Adolescence		<u>58</u>	78
19.	Teaching and Teacher Education		<u>57</u>	88
20.	Regional Studies		<u>57</u>	82

### Top publications

### Categories > Social Sciences > Library & Information Science \*

	Publication	h5-index	h5-median	
1.	Journal of the Association for Information Science and Technology	<u>56</u>	75	
2.	Scientometrics	<u>52</u>	71	
3.	Journal of Informetrics	<u>38</u>	55	
4.	The Journal of Academic Librarianship	<u>29</u>	40	
5.	Online Information Review	<u>28</u>	42	
6.	Journal of Information Science	<u>25</u>	33	
7.	College & Research Libraries	<u>25</u>	32	
8.	Journal of Documentation	<u>23</u>	34	
9.	Library Hi Tech	22	35	
10.	Library & Information Science Research	<u>22</u>	34	
11.	Portal: Libraries and the Academy	<u>21</u>	34	
12.	Aslib Journal of Information Management	<u>21</u>	31	
13.	The Electronic Library	<u>21</u>	29	
14.	Information Development	<u>21</u>	27	
15.	International ACM/IEEE Joint Conference on Digital Libraries	<u>21</u>	26	
16.	Journal of the Medical Library Association: JMLA	20	29	
17.	Journal of Librarianship and Information Science	20	27	
18.	Reference Services Review	<u>19</u>	27	
19.	Information Research	<u>19</u>	26	
20.	Learned Publishing	<u>19</u>	25	

# Summary

## Citation Indexes

- Useful for going forward or backward in a discipline through citations
- Variation across the three main tools
  - Important to understand how and why they differ
- Multiple ways of measuring value based on citations (but all are problematic)

# Questions

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