# The Google Scholar Revolution: opening the academic Pandora's box

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**Facultad de Comunicación y Documentación**
**Universidad de Granada**

# The transformation of scientific communication

# From the Gutenberg Galaxy

Le transfert de l'information scientifique et technique :

le rôle des nouvelles technologies de l'information face à la crise du modèle actuel de communication écrite

par Emilio Delgado Lopez-Cozar et José Antonio Cordon Garcia

## 1. Science et communication écrite

La communication écrite est inhérente à la logique interne de la science. Le progrès scientifique est basé sur la tradition accumulative de la science (1), c'est-à-dire, dans le transfert continu des idées et des connaissances entre les scientifiques. Le profit successif des découvertes, des expériences et des idées de quelques scientifiques par d'autres dans une chaîne sans fin se trouve à la source de la science. Et non seulement dans celle-ci, sinon dans le noyau lui-même du processus créatif tel que nous l'exposent les courants modernes de la critique littéraire ou artistique en général, lorsqu'elles nous parlent de l'intertextualité, ou de la latence de toute une tradition antérieure dans toutes les œuvres nouvelles.

La fixation de l'écriture à un support a rendu possible ce mécanisme générateur de la science. Les moyens de communication écrite, véhicules de transmission de connaissances stables et permanentes dans le temps et l'espace, assurent le développement scientifique. Mikhailov en vient à affirmer que "la science surgit seulement lorsque apparaît le langage écrit, étant donné que, seule, l'écriture peut garantir une accumulation authentique des connaissances" (2). L'information écrite facilite ce mouvement continu, cette tension dialectique de nature incertaine et provisoire dans laquelle se débat la science.

La science à partir de l'observation de données et de faits, qui sont décrits, sélectionnés et mis en relation afin d'être expliqués moyennant une hypothèse, exige de mettre en contraste, vérifier et corroborer ces dernières méthodiquement. Le processus réflexif auquel donne lieu la méthode scientifique implique un certain degré d'abstraction des idées qui trouve dans la communication écrite son milieu idéal de diffusion.

## 2. La science : caractéristiques contemporaines

Nous allons nous consacrer à l'approche des profils actuels de la science. Il s'agit de découvrir ses caractéristiques afin d'obtenir par la suite les nécessités informatives qui dérivent de son état actuel.

# To the Web Galaxy

# The power of the Publisher

*The Gutenberg galaxy*
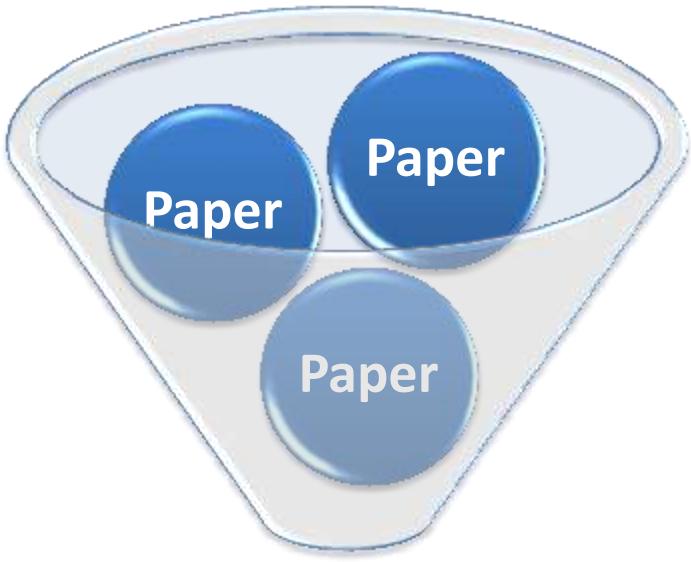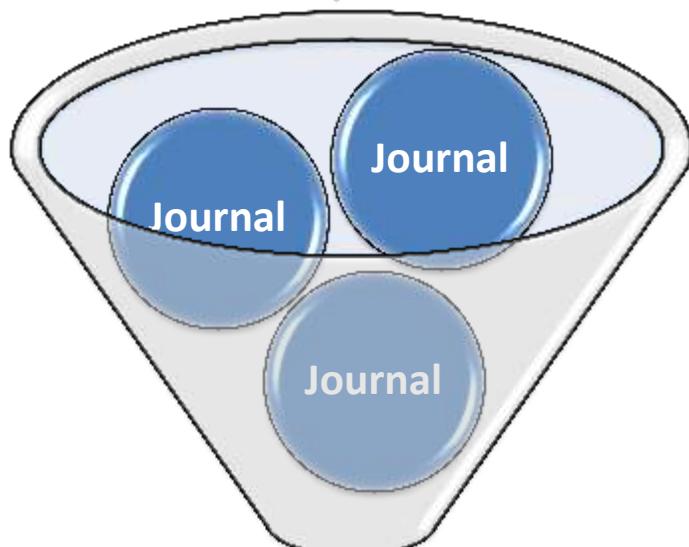
# Academic filters

Internet gave a voice to those that didn't have one, and a loudspeaker to those that already had voice

*The Web Galaxy*

# It universalized scientific communication, and facilitated the interconnection of scientists: the global village



## *The Web Galaxy*

# It enabled the author to control the editing, publishing and dissemination processes of his work

| Write | Revise | Layout Design | Distribution | Sales | Dissemination |
|-------|--------|---------------|--------------|-------|---------------|

*The web galaxy*

From the author to the reader

*The Web Galaxy*

# Authors can know who their audience is

# It created new venues of communication

**Personal & Institutional Web pages**

**Topic / Institutional Repositories**
The new containers of scientific information

**Blogs**

**Video channels**

**Social Networks**

**Scientific and professional Social Networks**
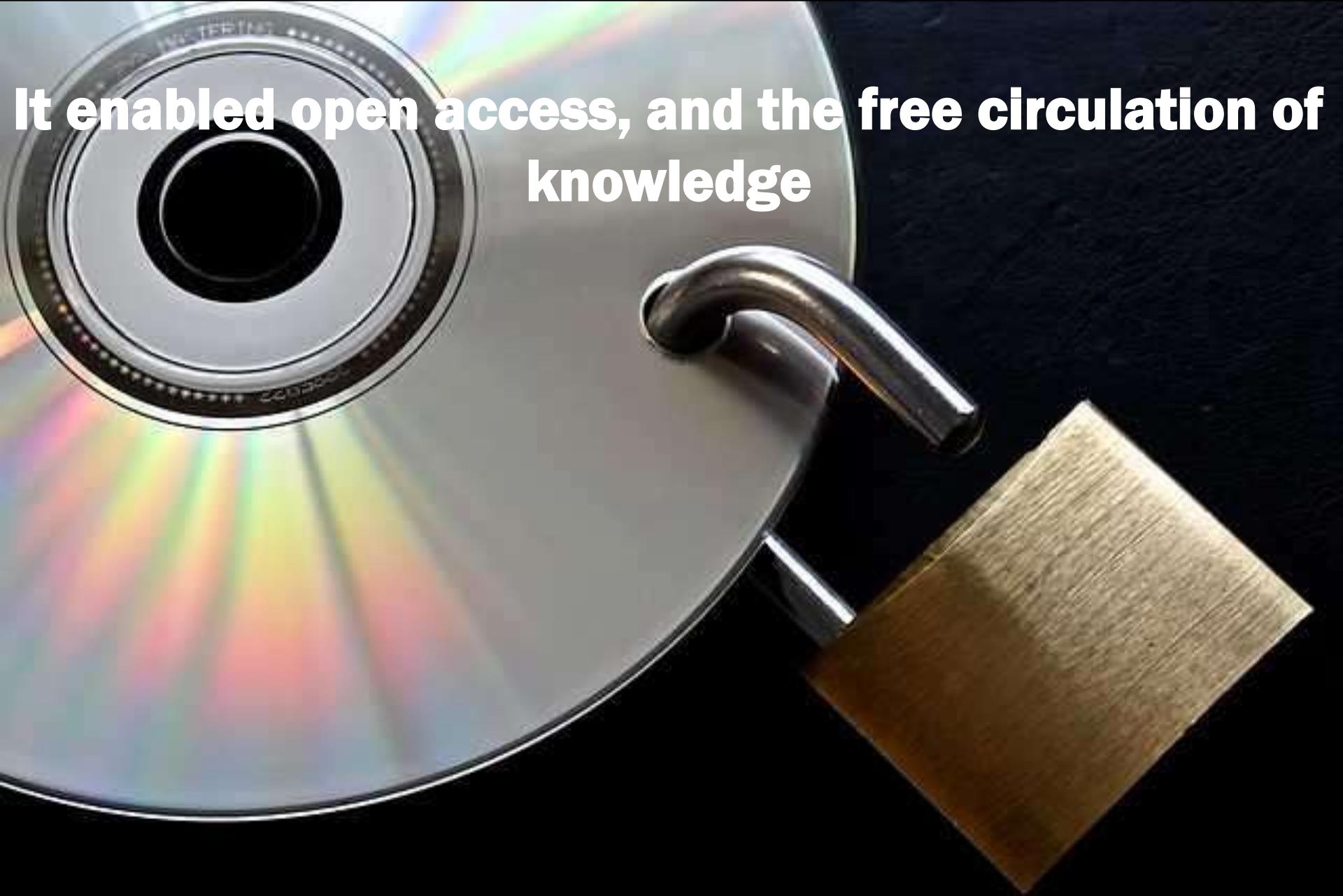
# Google académico

**Why was it successful?**

Simple

Easy

Fast

Easy to understand and use

Universal, international, global

Multilingual

Free

It's the most used academic search engine

Google Scholar's Digest

TWEETS 226    FOLLOWERS 619    LIKES 3    Edit profile

**Google Scholar Digest** @GScholarDigest · Jan 3
Google Scholar is the most used platform to search scientific information and set up alerts according to
101innovations.wordpress.com

**Google Scholar Digest** @GScholarDigest · 23 Dec 2016
"Google Scholar holds a virtual monopoly for finding scholarly content.In all countries bar China, GS is very much the tool of first choice"
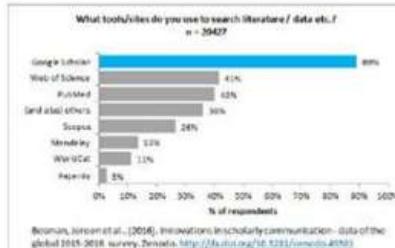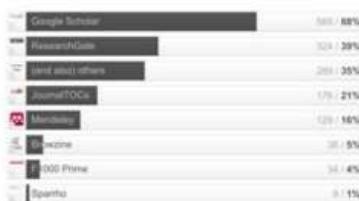
**Google Scholar Digest** @GScholarDigest · 31 May 2016
Search Engines: The Google-Google Scholar's empire
digitalcommons.unl.edu/cgi/viewconten…

En 2015…

En 2016…
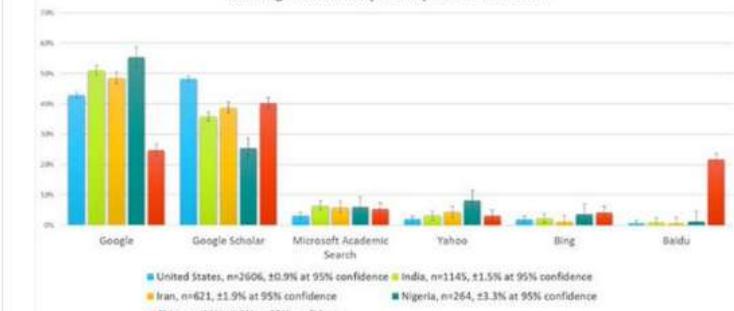
Gardner, T & Inger, S (2016). How Readers Discover Content in Scholarly Publications. Abingdon, Renew Training. ISBN 978-0-9573920-4-5

# The search engine with the largest coverage
# Size matters
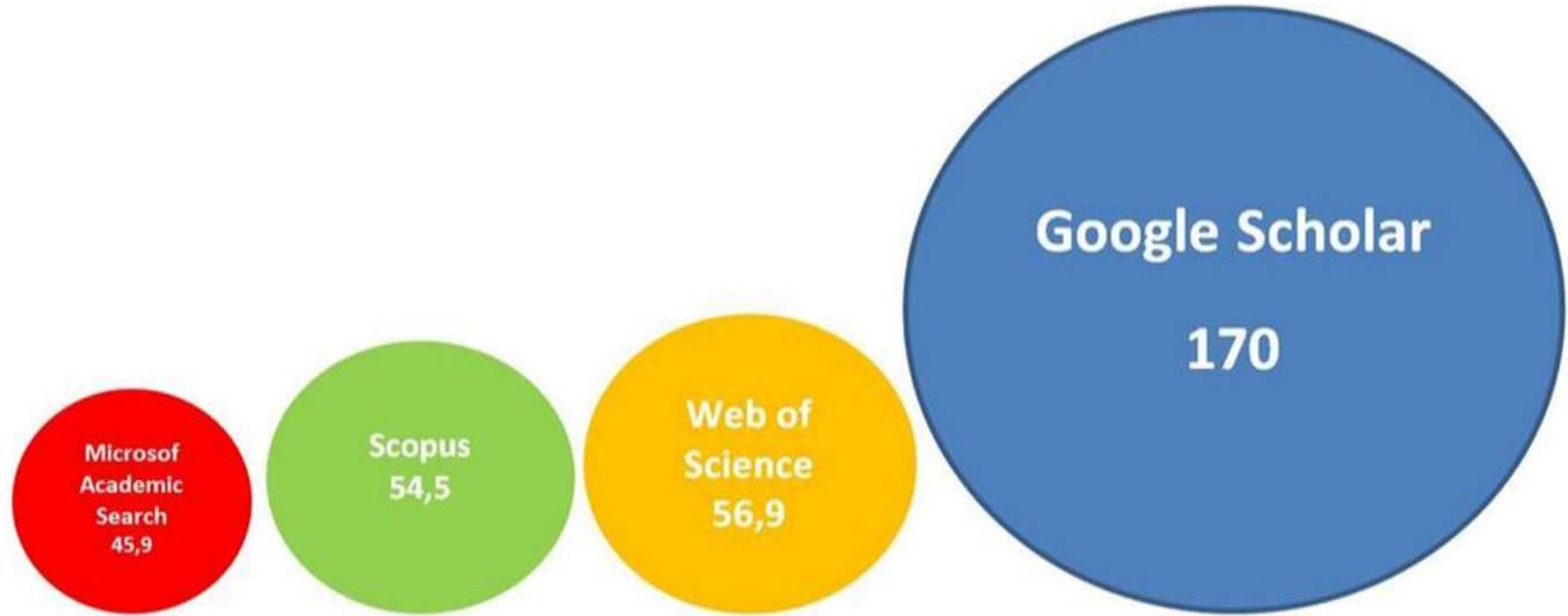
Orduña-Malea, E., Ayllón, J. M., Martín-Martín, A., Delgado López-Cózar, E.. (2014). About the size of Google Scholar: playing the numbers. arXiv preprint arXiv:1407.6239. *EC3 Working Papers 18*

Orduna-Malea, E., Ayllón, J. M., Martín-Martín, A., Delgado López-Cózar, E. Methods for estimating the size of Google Scholar. *Scientometrics* 104 (3), 931-949

## Library & Information Science (2011)
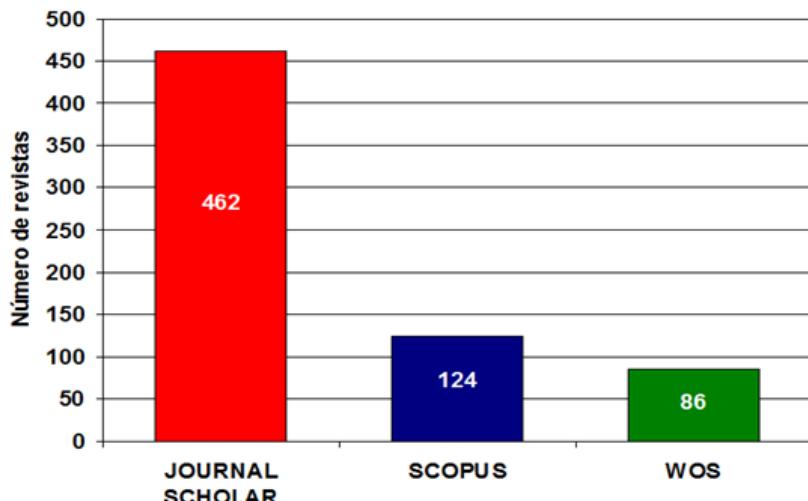


Número de revistas

- JOURNAL SCHOLAR: 462
- SCOPUS: 124
- WOS: 86

Delgado López-Cózar, E.; Orduña Malea, E.; Marcos Cartagena, D.; Jiménez Contreras, E.; Ruiz Pérez, R. (2012). JOURNAL SCHOLAR: Una alternativa internacional gratuita y de libre acceso para medir el impacto de las revistas de Arte, Humanidades y Ciencias Sociales. EC3 Working Papers 5: 12 de mayo de 2012

## Communications Journals (2012)



- GS metrics: 277
- Scopus: 167
- WOS: 106
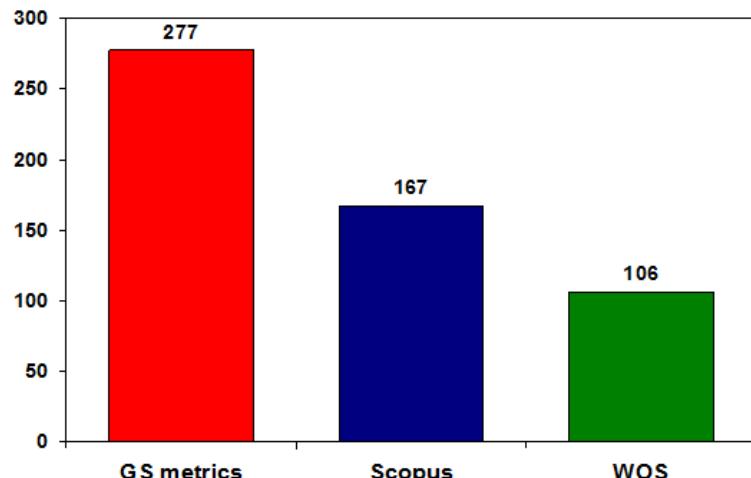
Delgado López-Cózar, E.; Repiso Caballero, R. Delgado, E. (2013). The Impact of Scientific Journals of Communication: Comparing Google Scholar Metrics, Web of Science and Scopus. Comunicar, 21(41), 45-52.

**Google Scholar Digest** @GScholarDigest · 27 Jul 2016
GSM covers 2.5 times more Spanish journals than SJR and 11 times more than JCR researchgate.net/publication/30…



■ Google Scholar Metrics ■ Scimago Journal Rank ■ Journal Citation Reports

N revistas

- Google Scholar Metrics: 1296
- Scimago Journal Rank: 506
- Journal Citation Reports: 114
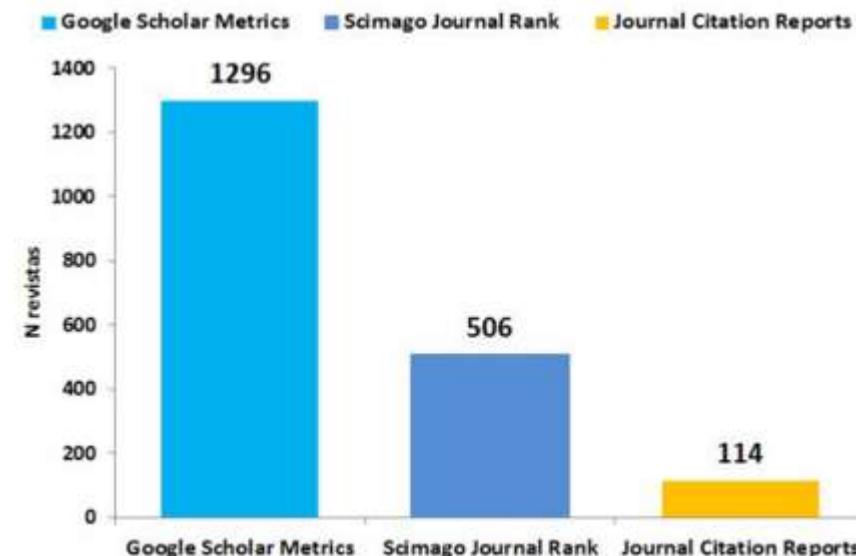
**Google Scholar Digest** @GScholarDigest · 13 Jun 2016
Google Scholar: 3 times more citations than Microsoft Academic, 3.5 more than Scopus, & 5.6 more than Web of Science
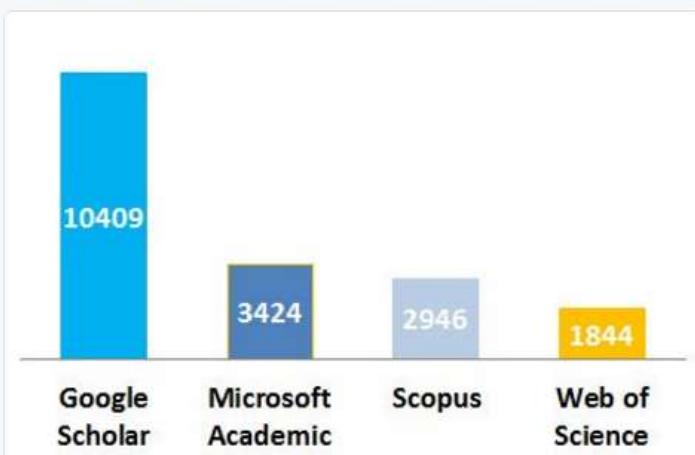


- Google Scholar: 10409
- Microsoft Academic: 3424
- Scopus: 2946
- Web of Science: 1844

Microsoft Academic (Search): a Phoenix arisen from the ashes?
Anne-Wil Harzing. Scientometrics (in press)
https://goo.gl/vsi6oo

Emilio Delgado López-Cozar's case

Google Scholar
299 docs
3,179 citations

ResearchGate
253 docs
1,434 citations

Semantic scholar
33 docs
413 ciatios

Scopus
68 docs
611 citations

Microsoft Academic
156 docs
551 citations

Web of Science
64 docs
428 citations
*Core Collection*

74 docs
479 citations
*All Databases*

120 docs
833 citations
*All Databases Cited References*

# International



**Journals Information & Library Science (2011)**
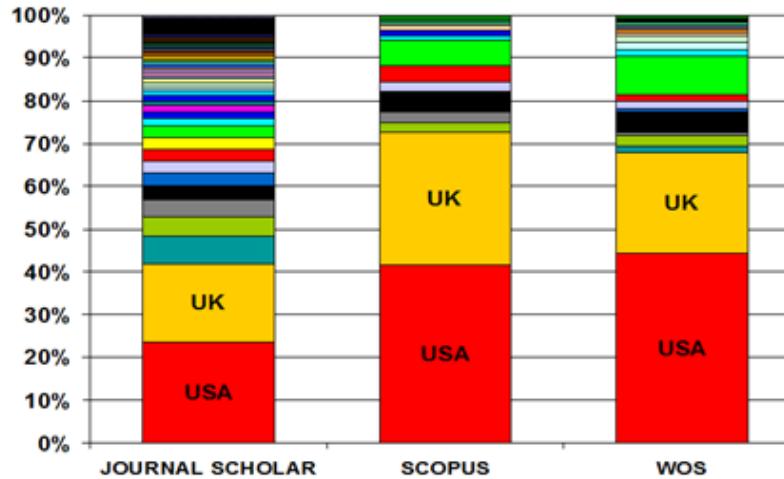
Delgado López-Cózar, E.; Orduña Malea, E.; Marcos Cartagena, D.; Jiménez Contreras, E.; Ruiz Pérez, R. (2012). JOURNAL SCHOLAR: Una alternativa internacional, gratuita y de libre acceso para medir el impacto de las revistas de Arte, Humanidades y Ciencias Sociales. EC3 Working Papers 5: 12 de mayo de 2012

**Nursing Journals (2012)**
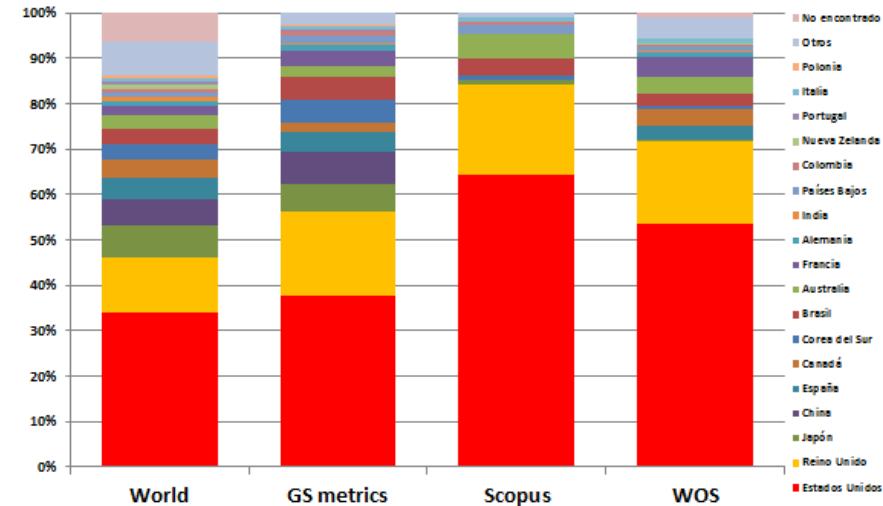


**Communications Journals (2012)**

# Multilingual
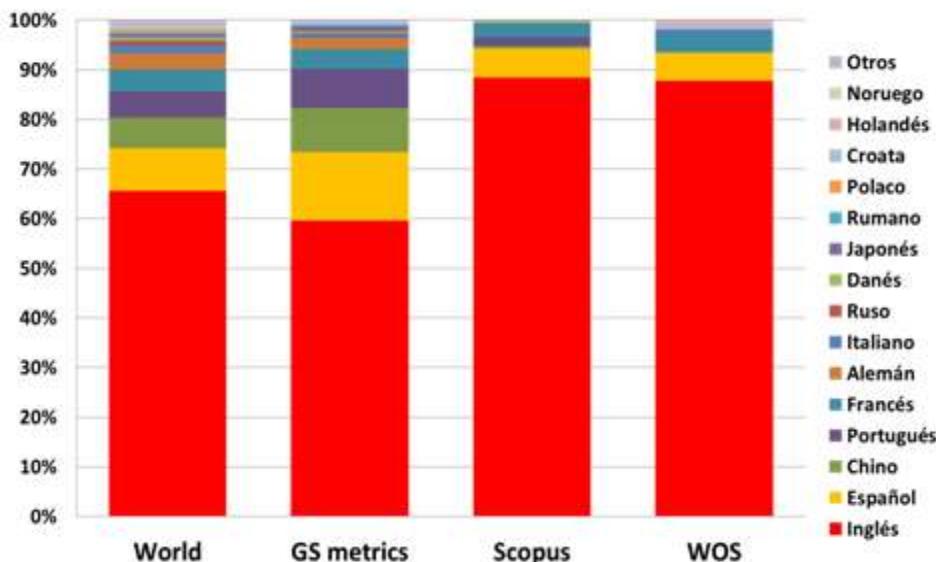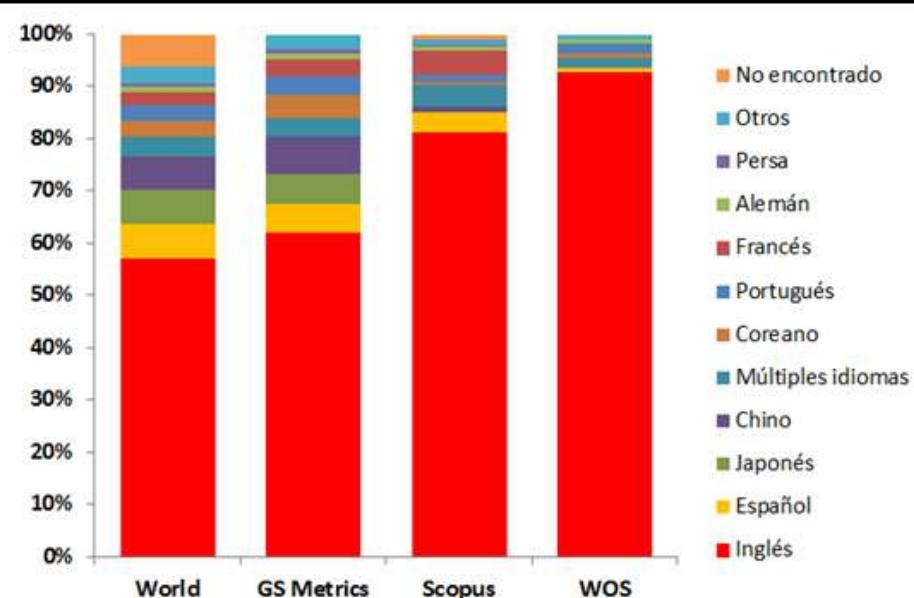


Delgado López-Cózar, E.; Repiso Caballero, R. El impacto de las revistas de Comunicación: comparando Google Scholar Metrics, Web of Science y Scopus. Comunicar, en prensa

# Covers all document typologies



WOS - SCOPUS | Google Scholar

- Journal Articles
- Conference proceedings
- Dissertations, Master's Theses
- books
- Reports
- Otros
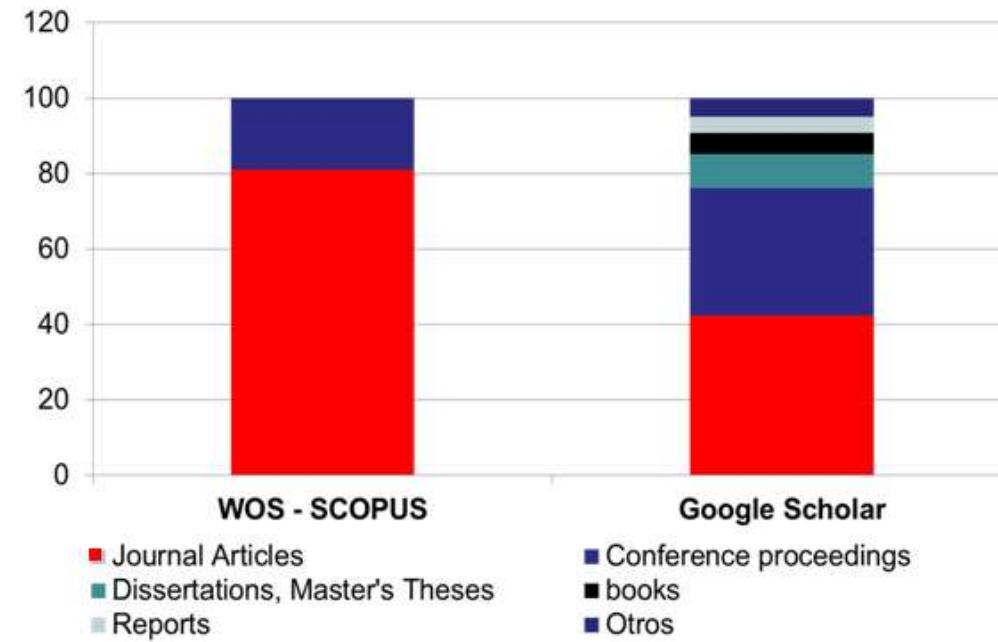
Meho, L. I., & Yang, K. (2007). Impact of data sources on citation counts and rankings of LIS faculty: Web of Science versus Scopus and Google Scholar. Journal of the American society for information science and technology, 58(13), 2105-2125.

**Google Scholar Digest** @GScholarDigest · 13 Jun 2016
Google Scholar, followed by Microsoft Academic, are the platforms that offer a more varied range of doc types



- mainstrean journals
- secondary journals
- book chapters
- conference papers
- white papers (website)
- books
- newsletter articles
- company report
- journal ranking
- software program

| | | |
|---|---|---|
| Web of Science | 40 | 6  1 |
| Scopus | 44 | 12  2 2 |
| Microsoft Academic | 47 | 22  7  7  1 3 2 |
| Google Scholar | 47 | 22  20  15  12  3 2111 |

Microsoft Academic (Search): a Phoenix arisen from the ashes?
Anne-Wil Harzing, Scientometrics (in press)
https://goo.gl/vci6oo

# Google Scholar offers a different vision of scientific production

| Documents | N° citations |
|---|---|
| American Psychiatric Association. (1952). *Diagnostic and statistical manual: mental disorders* | 258,608 |
| Sambrook J, Fritsch EF, Maniatis T. (1982). *Molecular cloning: a laboratory manual* | 250,754 |
| Laemmli UK. (1970). *Cleavage of structural proteins during the assembly of the head of bacteriophage T* | 236,659 |
| Bradford MM. (1976). *A rapid and sensitive method for the quantitation of microgram quantities of protein using the principle of protein dye binding* | 216,043 |
| Lowry OH et al. (1951). *Protein measurement with the Folin phenol reagent* | 198,171 |
| Yin RK. (1984). *Case study research: design and methods* | 139,410 |
| Press WH. (1986). *Numerical recipes: the art of scientific computing* | 120,631 |
| Kuhn TS. (1962). *The structure of scientific revolutions* | 91,109 |
| Abramowitz M, Stegun IA. (1964). *Handbook of mathematical functions: with formulas, graphs, and mathematical tables* | 90,020 |
| Zar JH. (1974). *Biostatistical analysis* | 81,137 |

## Top 10 most-cited Spanish documents in Google Scholar (1950-2016)

| Documents | N° citations |
|---|---|
| Hernández R, Fernández C, Baptista P. (2006). *Metodología de la investigación* | 32,555 |
| Freire P. (1997). *Pedagogía de la autonomía: saberes necesarios para la práctica educativa* | 27,848 |
| Freire P. (1970). *Pedagogía del oprimido* | 24,971 |
| Csikszentmihalyi M. (1990). *Fluir: una psicología de la felicidad* | 24,044 |
| Foucault M. (1978). *Microfísica del poder* | 20,894 |
| Deming WE. (1989). *Calidad, productividad y competitividad: la salida de la crisis* | 18,938 |
| Weber M. (1944). *Economía y sociedad* | 16,792 |
| Castells M. (2004). *La era de la información: economía, sociedad y cultura* | 15,233 |
| Real Academia Española. *Diccionario de la Lengua Española* | 13,725 |
| Foucault M. (1970). *La arqueología del saber* | 13,179 |

# What impact do they measure?
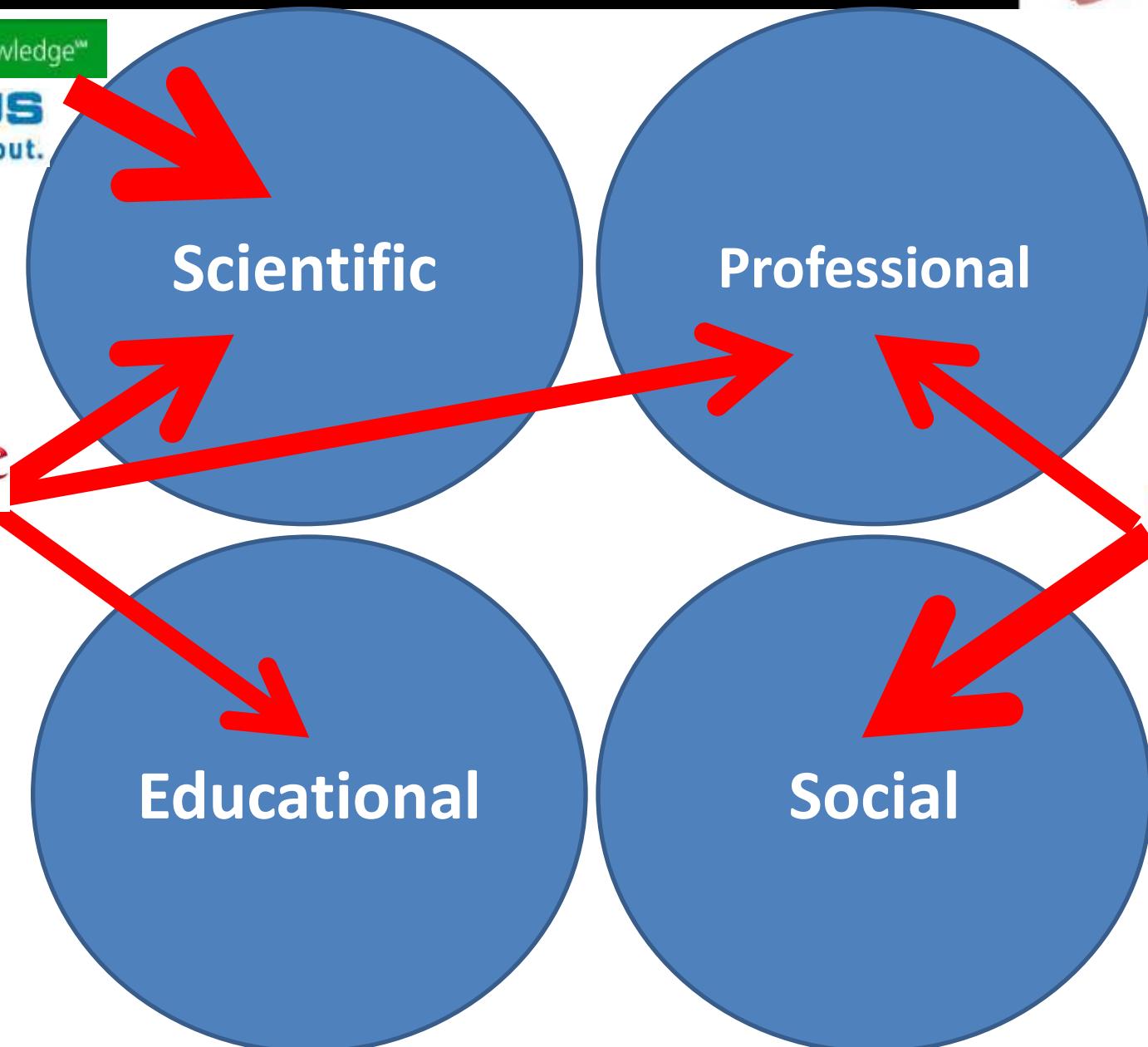
# What impact do they measure?

**AUTORES** · **DOCUMENTOS** · **REVISTAS** · **EDITORIALES** · **INSTITUCIONES**

Mostrando autores 1-25 de 336. Ordenados por citas (últimos 5 años), descendentemente.

Busque un autor

| Nombre | Institución | Últimos 5 años Citas | Últimos 5 años Índice H | Totales Citas | Totales Índice H | Web of Science Docs. | Web of Science Citas | Web of Science Índice H | ResearchGate RG Score | ResearchGate Impact Points |
|--------|-------------|------|---------|-------|---------|------|-------|---------|----------|---------------|
| Félix de Moya Anegón | CSIC | 2933 | 26 | 4722 | 34 | 117 | 998 | 16 | 35,3 | 162,0 |
| Ismael Rafols | CSIC/UPV/SPRU | 2029 | 21 | 2509 | 24 | 39 | 1141 | 17 | 26,8 | 74,7 |
| Emilio Delgado López-Cózar | UGR | 1585 | 20 | 1933 | 23 | 53 | 318 | 9 | 30,8 | 174,1 |
| Rafael Aleixandre-Benavent | CSIC/UV | 1239 | 15 | 2064 | 21 | 93 | 289 | 10 | 33,6 | 148,3 |
| Victor Herrero-Solana | UGR | 1224 | 15 | 2357 | 23 | 28 | 210 | 6 | 24,1 | 38,9 |
| Isidro F. Aguillo | CSIC | 1212 | 16 | 1919 | 23 | 62 | 381 | 11 | 29,7 | 123,4 |
| Daniel Torres-Salinas | UGR | 1086 | 16 | 1165 | 20 | 46 | 165 | 8 | - | - |
| Evaristo Jimenez-Contreras | UGR | 1063 | 16 | 1466 | 21 | 48 | 338 | 9 | - | - |
| Zaida Chinchilla-Rodríguez | CSIC | 937 | 15 | 1491 | 21 | 31 | 190 | 7 | 33,2 | 56,6 |
| Vicente Pablo Guerrero Bote | UNEX | 893 | 16 | 1291 | 21 | 38 | 389 | 12 | 26,7 | 64,8 |
| Benjamín Vargas-Quesada | UGR | 837 | 14 | 1427 | 19 | 29 | 206 | 7 | 27,9 | 62,6 |
| José Luis Ortega | CSIC | 804 | 14 | 1052 | 15 | 42 | 277 | 9 | 26,0 | 62,0 |
| Rodrigo Costas | CWTS | 777 | 16 | 891 | 16 | 29 | 325 | 10 | 23,7 | 49,0 |
| José Antonio Gordón García | USAL | 774 | 14 | 1075 | 16 | 16 | 14 | 2 | 14,5 | 7,8 |
| Yusef Hassan Montero | SCImago Lab | 692 | 13 | 1168 | 16 | 6 | 24 | 3 | - | - |
| Rafael Ruiz-Pérez | UGR | 625 | 12 | 770 | 14 | 20 | 151 | 6 | 22,3 | 101,0 |
| Lluís Codina | UPF | 622 | 13 | 1403 | 20 | 27 | 41 | 4 | 16,4 | 13,6 |
| Ernest Abadal | UB | 542 | 12 | 943 | 16 | 24 | 47 | 3 | 15,2 | 12,2 |
| María Pinto Molina | UGR | 533 | 13 | 1125 | 18 | 49 | 181 | 8 | 25,9 | 48,3 |
| Julio Alonso Arevalo | USAL | 529 | 13 | 676 | 15 | 9 | 5 | 1 | 10,3 | 2,3 |
| Elena Corera-Álvarez | CSIC | 517 | 11 | 876 | 12 | 8 | 119 | 4 | 21,5 | 21,8 |
| José-Antonio Gómez-Hernández | UM | 497 | 11 | 1003 | 17 | 7 | 5 | 1 | 4,4 | 0,7 |
| Adolfo Alonso-Arroyo | UV | 484 | 12 | 589 | 14 | 40 | 118 | 6 | 30,8 | 108,2 |
| Elias Sanz-Casado | UC3M | 479 | 10 | 958 | 15 | 38 | 80 | 5 | 22,9 | 38,2 |
| José Antonio Merlo Vega | USAL | 437 | 11 | 959 | 17 | 6 | 9 | 2 | 7,4 | 4,3 |

Primera | Anterior | Siguiente | Última

Fecha de actualización: 27/02/2015

# A professional journal in Google Scholar

**Google** Mi biblioteca

**Scholar** About 728 results (**0.03** sec)

**Articles** Publication: **Mi biblioteca**

## Cited by

45%

21%

20%

3%

3%

2%

1% 1% 1% 1% 1% 1%

Spanish 94%

English 3%

French 2%

Gallician 1%
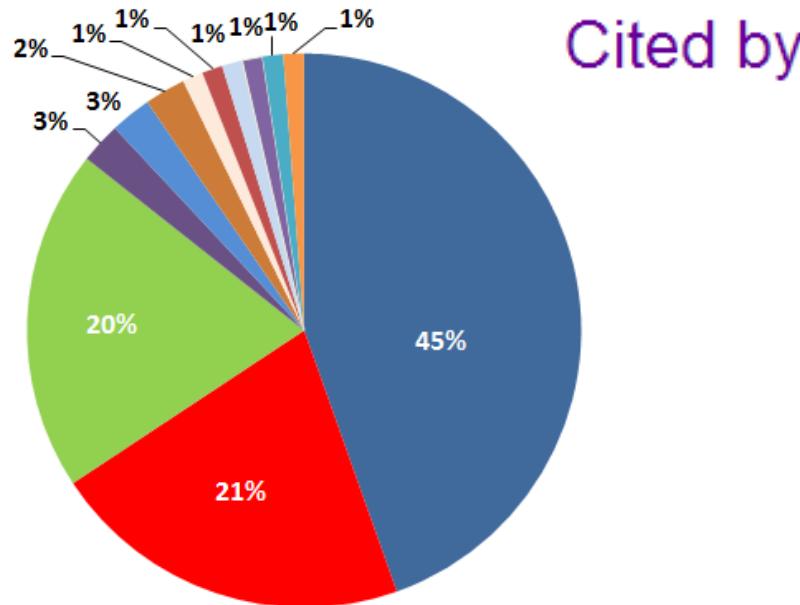
- Journals
- Thesis (undergraduate, master, doctoral)
- Preprints
- Yearbook
- Conferencia
- Proceeding, Worshop, meeting
- Reports
- Syllabus
- Bibliography
- Book

Google Scholar
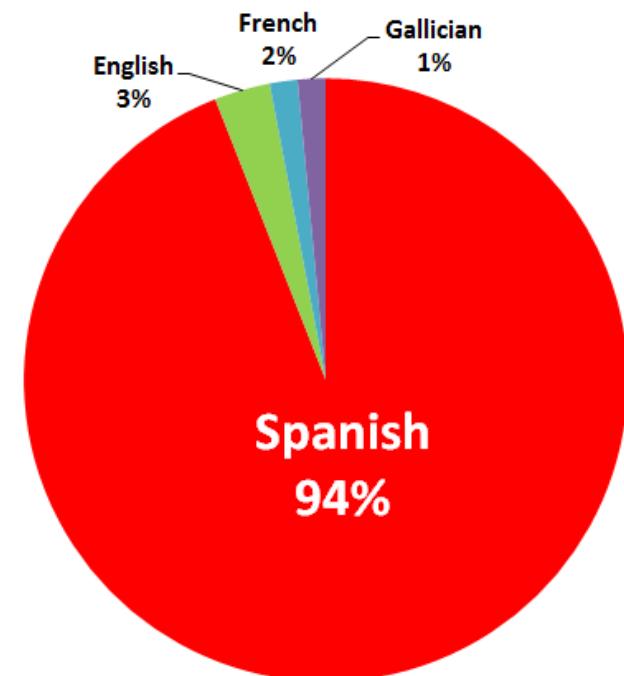
JOURNALS     PUBLISHERS     AUTHORS     DOCUMENTS

**EMILIO DELGADO LÓPEZ-CÓZAR** is a Professor of research methodology at the University of Granada, and cofounder of the EC3 Research Group (Science and Scientific Communication Evaluation). He has developed a number of tools for scientific evaluation, including IN-RECS, IN-RECJ, IN-RECH (impact factor of Spanish journals in the Social Sciences, Legal Sciences, and Humanities), the I-UGR Ranking of Spanish universities, RESH (Spanish Journals in the Social Sciences, an... **See More**

**ALBERTO MARTÍN-MARTÍN** is an FPU (University Professor Training) Research Fellow and PhD Candidate in the field of bibliometrics and scientific communication at the University of Granada. His earlier degrees in Library and Information Science are from the same university, where he graduated with honours. He is currently a member of the EC3 Research Group, where he has collaborated in various research projects, technical reports and journal articles since 2013.

**ENRIQUE ORDUÑA-MALEA** holds a PhD in Documentation from the Polytechnic University of Valencia, where he currently works as a postdoctoral researcher. He belongs to the EC3 Research Group at UGR and Trademetrics Research Group at UPV. He specialises in web metric methods applied to the processes of creation, diffusion and consumption of content and products on the web, both in academic and industrial environments.

**JUAN MANUEL AYLLÓN MILLÁN** is an FPI (Predoctoral Research Grant) Research Fellow and a PhD Candidate in the field of bibliometrics and scientific communication at the University of Granada. His earlier degrees in Library and Information Science are from the same university. He is also a member of the EC3 Research Group.

# What have we analyzed?

**Journals**

JOURNAL SCHOLAR METRICS
ARTS, HUMANITIES AND SOCIAL SCIENCES

Índice H de las revistas científicas españolas según Google Scholar Metrics

**Autores**

H Index Scholar

**Editoriales**

Publishers Scholar Metrics

**Multifaceted model**

AUTHORS   DOCUMENTS   JOURNALS   PUBLISHERS   INSTITUTIONS

**Library & Information Sciences (Spain)**
http://www.biblioteconomia-documentacion-española.infoec3.es

**Bibliometrics & Scientometrics (International)**
http://www.scholar-mirrors.infoec3.es

Search a journal

## SUBJECT CATEGORY RANKINGS

## COUNTRY RANKINGS

WORLD -> AFRICA  EUROPE  AMERICAS  ASIA  OCEANIA

### SOCIAL SCIENCES

| | |
|---|---|
| ANTHROPOLOGY | (298) |
| COMMUNICATION | (320) |
| BUSINESS, ECONOMICS & MANAGEMENT | (1761) |
| EDUCATION | (1126) |
| GEOGRAPHY & URBAN STUDIES | (548) |
| LAW | (920) |
| LIBRARY & INFORMATION SCIENCE | (277) |
| POLITICAL SCIENCE, ADMINISTRATION & INTERNATIONAL RELATIONS | (1074) |
| PSYCHOLOGY | (1032) |
| SOCIOLOGY | (1007) |
| MULTIDISCIPLINARY | (202) |
| SOCIAL WORK | (132) |
| SPORT SCIENCES | (213) |

### ARTS & HUMANITIES

# Journal Scholar Metrics

## Arts, Humanities, and Social Sciences
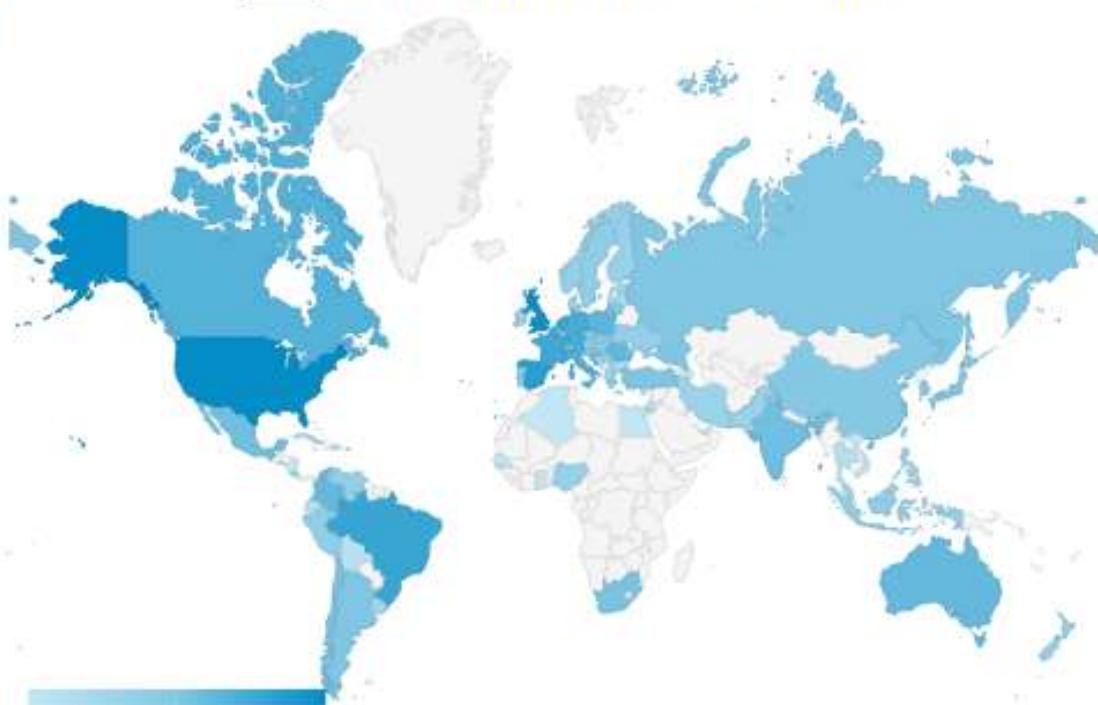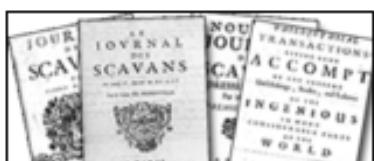
Search a journal

## COMMUNICATION

Displaying core journals 1-20 of 296. Sorted by H5-Index, decreasingly.

☐ Check to display related journals as well

Filter by country ▾

Find a journal in this ranking

| Rank | Country | Journal name | Totals | | | | Without journal self-citations | | |
|------|---------|--------------|--------|---------|-----------|------------|--------|-----------|---|
| | | | Quartile | H5-Index | H5-Median | H Citations | H5-Index | H Citations | % |
| 1 | 🇬🇧 | New Media & Society | Q1 | 54 | 83 | 5984 | 51 | 5800 | ⟳ |
| 2 | 🇺🇸 | Journal of Communication | Q1 | 40 | 74 | 3733 | 39 | 3631 | ⟳ |
| 3 | 🇺🇸 | Journal of Health Communication | Q1 | 38 | 52 | 2248 | 35 | 2052 | ⟳ |
| 4 | 🇬🇧 | Information, Communication & Society | Q1 | 34 | 56 | 2902 | 32 | 2777 | ⟳ |
| 5 | 🇬🇧 | Public Relations Review | Q1 | 34 | 55 | 2559 | 32 | 2355 | ⟳ |
| 6 | 🇬🇧 | Public Opinion Quarterly | Q1 | 34 | 50 | 2395 | 32 | 2293 | ⟳ |
| 7 | 🇬🇧 | Telecommunications Policy | Q1 | 34 | 44 | 1907 | 30 | 1642 | ⟳ |
| 8 | 🇺🇸 | Communication Research | Q1 | 33 | 59 | 2191 | 33 | 2142 | ⟳ |
| 9 | 🇺🇸 | Journal of Computer-mediated Communication | Q1 | 32 | 53 | 2198 | 32 | 2164 | ⟳ |
| 10 | 🇬🇧 | Historical Journal of Film, Radio and Television | Q1 | 32 | 48 | 1780 | 32 | 1769 | ⟳ |
| 11 | 🇬🇧 | Public Understanding of Science | Q1 | 32 | 46 | 1677 | 31 | 1551 | ⟳ |
| 12 | 🇺🇸 | First Monday | Q1 | 31 | 65 | 2430 | 31 | 2375 | ⟳ |
| 13 | 🇬🇧 | Journal of Social and Personal Relationships | Q1 | 30 | 37 | 1258 | 30 | 1253 | ⟳ |
| 14 | 🇺🇸 | International Journal of Communication | Q1 | 29 | 47 | 2157 | 28 | 2094 | ⟳ |
| 15 | 🇬🇧 | Media, Culture & Society | Q1 | 29 | 40 | 1376 | 29 | 1339 | ⟳ |
| 16 | 🇬🇧 | Journalism | Q1 | 28 | 40 | 1402 | 27 | 1340 | ⟳ |
| 17 | 🇺🇸 | The International Journal of Press/politics | Q1 | 26 | 47 | 1374 | 26 | 1333 | ⟳ |
| 18 | 🇺🇸 | Human Communication Research | Q1 | 26 | 41 | 1319 | 26 | 1267 | ⟳ |
| 19 | 🇬🇧 | Journalism Studies | Q1 | 25 | 54 | 1543 | 25 | 1466 | ⟳ |
| 20 | 🇬🇧 | Journalism Practice | Q1 | 24 | 43 | 1608 | 23 | 1512 | ⟳ |

# Journal Scholar Metrics Indicators

**H Index of documents published in the last 5 years**

**Median of citation counts for articles published in last 5 years**

**Sum of citations for articles above h5-index threshold**

| | Total | | | Without journal self-citations | | |
|---|---|---|---|---|---|---|
| Quartile | H5-Index | H5-Median | H Citations | H5-Index | H Citations | % |
| Q1 | 56 | 80 | 6272 | 53 | 5833 | |

**Extracted directly from Google Scholar Metrics**

**Computed using the article and citation data available in Google Scholar Metrics**

# We question ourselves
## Drawbacks
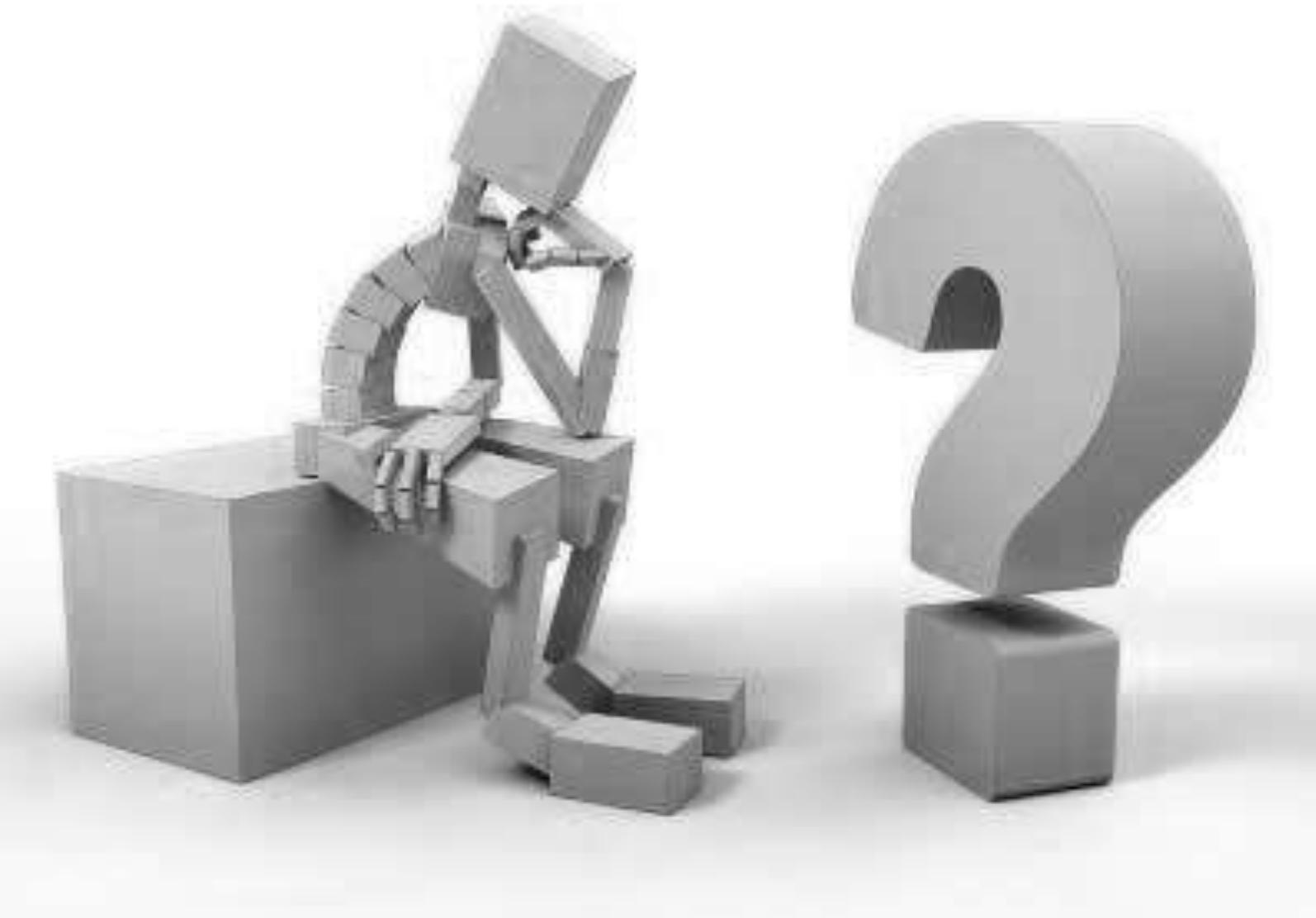
# Errors in the data
# Enough quality?



# ¿± 10%?

**Large units of analysis: no problem**
**Individuals: check data first**

**Even with «dirty» data, it measures more and better**
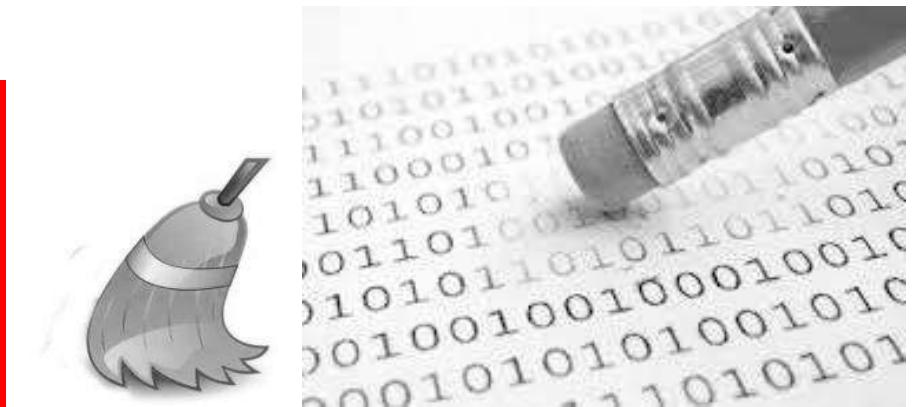
# Biggest danger: manipulation
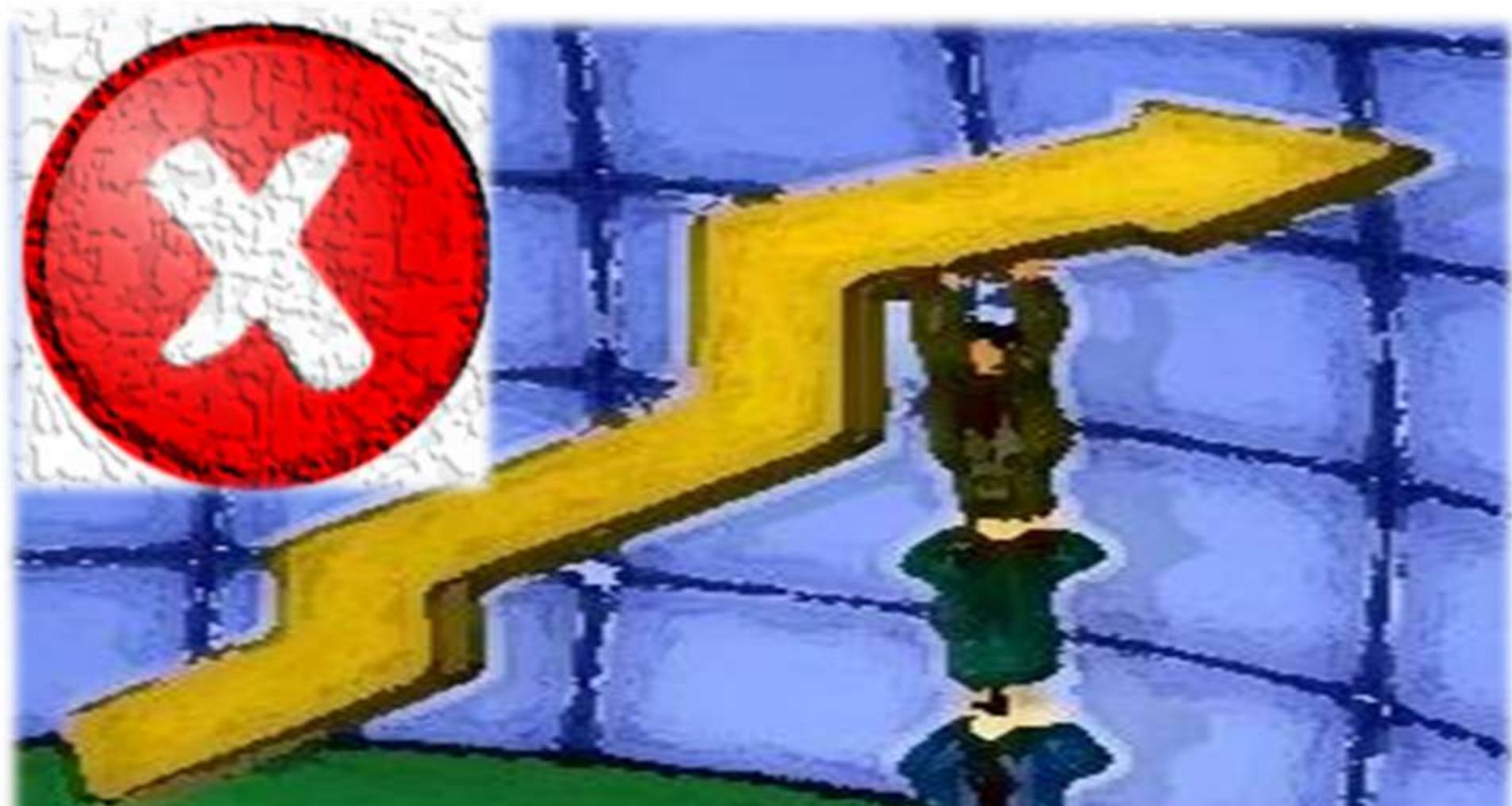


Delgado López-Cózar, E., Robinson-García, N., Torres-Salinas, D. (2014). The Google Scholar experiment: How to index false papers and manipulate bibliometric indicators. Journal of the Association for Information Science and Technology, 65(3), 446-454.

# The Googledependency

# Lack of transparency
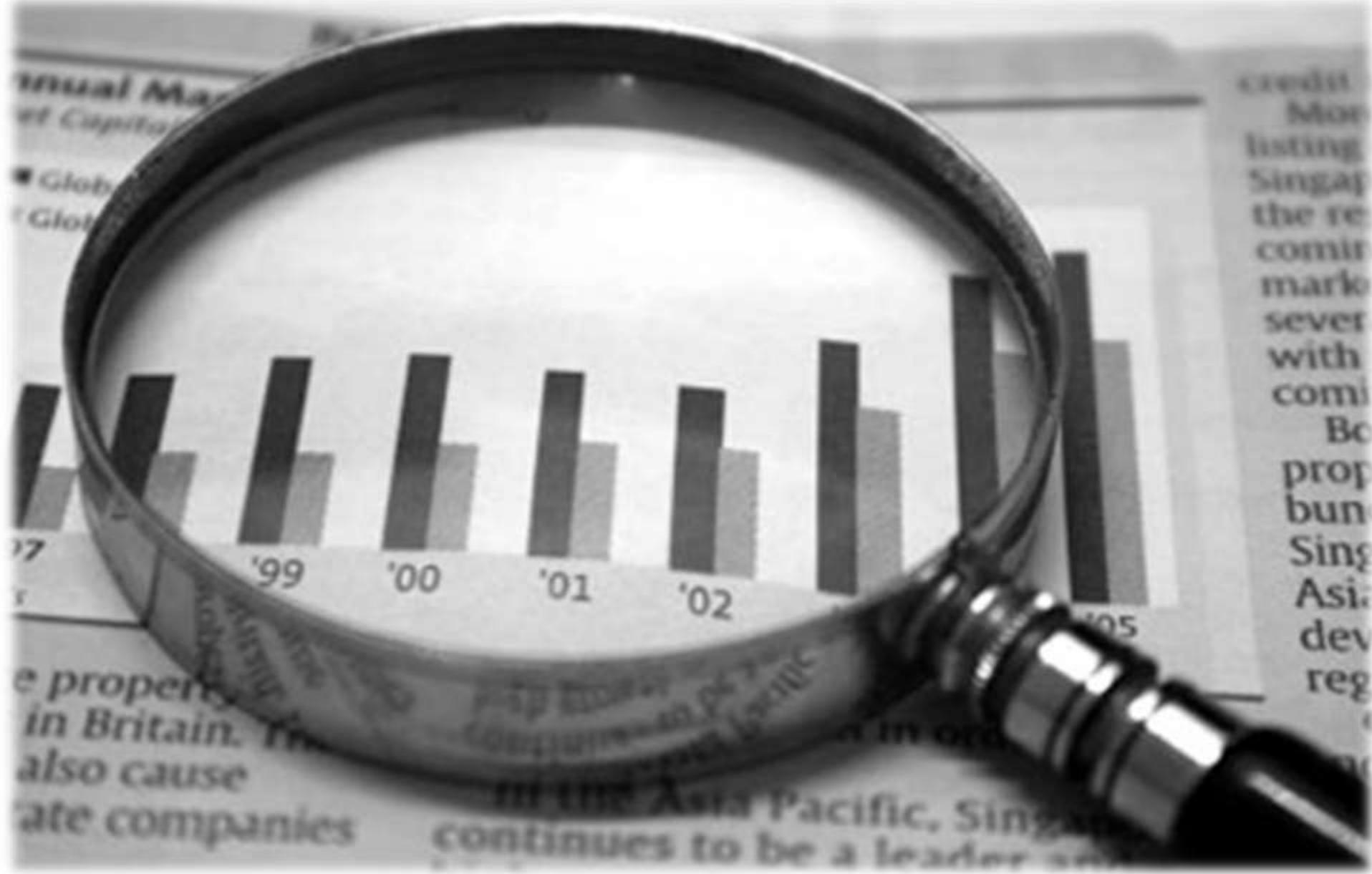
*It spreads light where there was darkness*
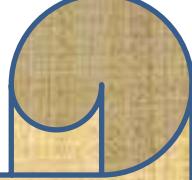
# An alternative model of publication and communication?

# The green route

arXiv.org

SSRN
tomorrow's research today

DIGITUM
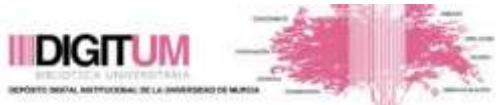
ResearchGate    Academia.edu

**Deposit in a repository**

**Publish**

Google

Google scholar

**Document indexed in Google & Google Scholar**

**Disseminate**

MENDELEY

ResearchGate

Academia.edu

**Disseminate in academic Social Networks**

**Disseminate in blogs, social networks**

**Sharing, social reading, asking, answering, commenting, analyze, rate**

**Collaborate**

# Where is the quality control and the certification? Who carries out the evaluation?

**From ex ante evaluation**
**Speak referee, speak**
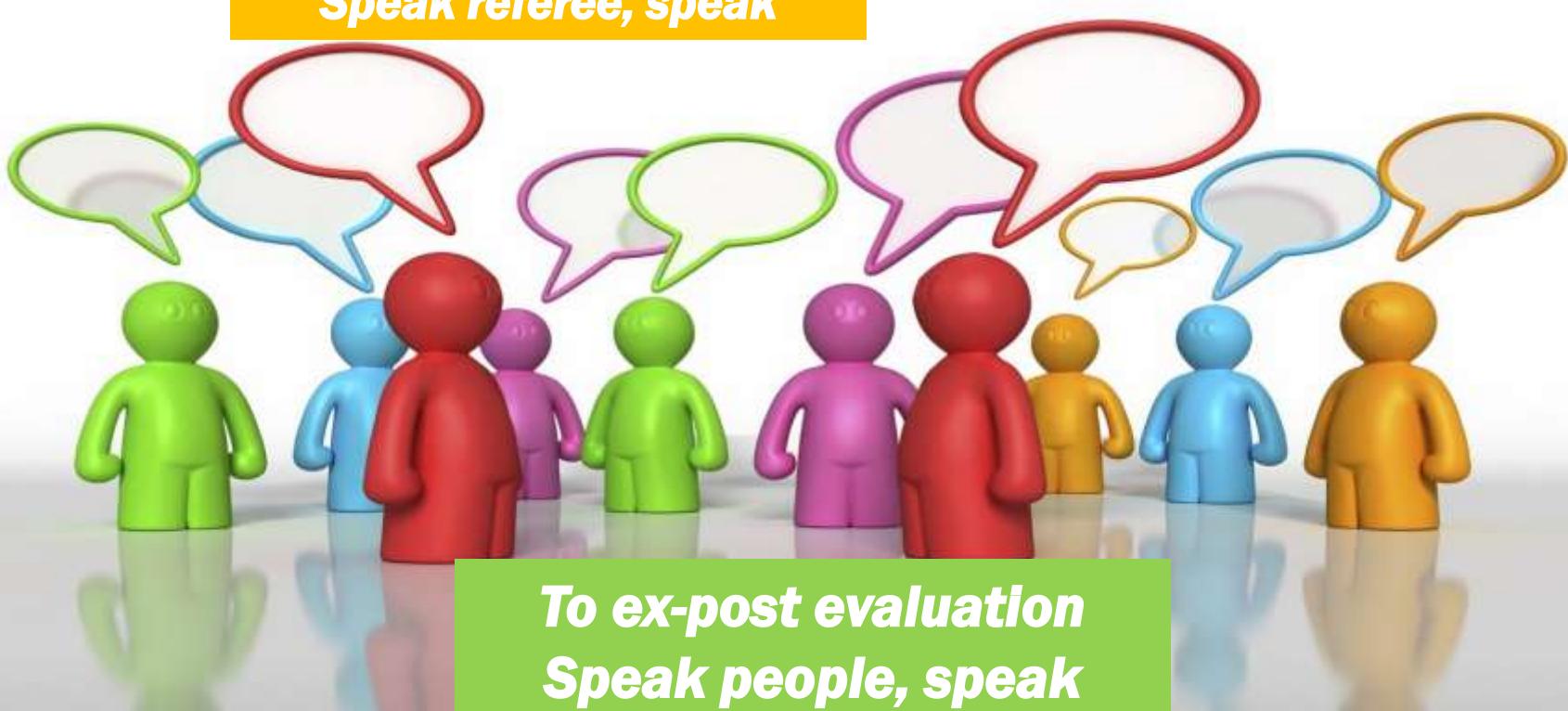
**To ex-post evaluation**
**Speak people, speak**

«Documentary Darwinism»

Natural Selection
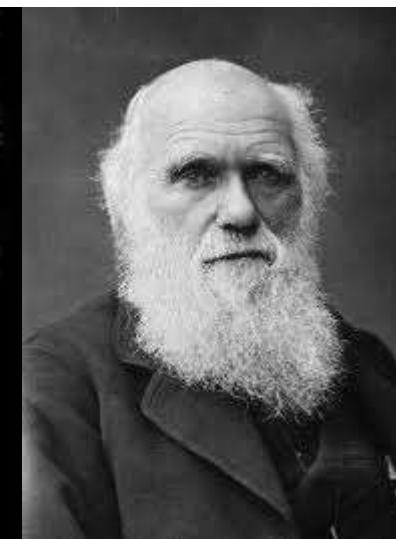
# Research evaluation
## A determining factor for academic communication practices

Nature **417**, 898 (27 June 2002) | doi:10.1038/417898b

**2002**

## Impact-factor rewards affect Spanish research

Evaristo Jiménez-Contreras[1], Emilio Delgado López-Cózar[1], Rafael Ruiz-Pérez[1] & Víctor M. Fernández[2]

the**bmj**   Research ▾   Education ▾   News & Views ▾   Campaigns ▾      Archive   For authors   Jobs   Hosted   Q Search

**2007**

Feature

How impact factors changed medical publishing—and science

BMJ 2007;334 doi: https://doi.org/10.1136/bmj.39142.454086.AD Published 15 March 2007
Cite this as: BMJ 2007;334:S61

Article   Related content   Article metrics   Rapid responses   Response

Impact of the impact factor in Spain

Spanish researchers have observed with interest and no little irony the debate on the virtues and vices of the impact factor and its potential use in the UK Research Assessment Exercises beginning in 2008. Perhaps Spain is not so different from other European countries, since the same debate took place in our country more than 15 years ago.

20 April 2007
Emilio Delgado López-Cózar
Associate Professor
Rafael Ruiz-Pérez, Evaristo Jiménez
Departamento de Biblioteconomía y Documentación, Universidad de Granada, Granada 18071, Spain

**The Metric Tide**

**2015**

**Literature Review**

Paul Wouters*, Mike Thelwall**, Kayvan Kousha**, Ludo Waltman*, Sarah de Rijcke*, Alex Rushforth*, and Thomas Franssen*

Role of Metrics in Research Assessment and Management

**July 2015**

# From Bibliometrics

**Evaluation of <span style="color:red">a few</span>, by <span style="color:red">a few</span>, for <span style="color:red">a few</span>**

# To Webometrics - Altmetrics

*Popularization and democratization of scientific evaluation*

**Evaluation <span style="color:red">of all</span>, <span style="color:red">by all</span>, <span style="color:red">for all</span>, <span style="color:red">of everything</span>, <span style="color:red">all the time</span>, <span style="color:red">everywhere</span>**

# In Bibliometrics,
# Journals are the epicentre of evaluation

## *Journal Impact Factor:*
## The gold standard of scientific evaluation

## Journal Rankings
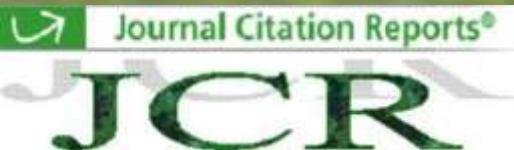
# ALLMETRICS
## *Webometrics y Altmetrics*

**EVERYTHIN CAN BE COUNTED**

**Documents are stored and used on the Web:**

- **Linked**
- **Visited**
- **Visualized**
- **Downloaded**
- **Tagged**
- **Mentioned**
- **Commented**
- **Reviewed**
- **Rated**
- **Followed**
- **Cited (Google scholar)**

**From the digital fingerprint to the digital identity**

New academic mirrors

The rulers of the new Bibliometrics: multiple and varied indicators from multiple sources

New metrics

# Scholar Mirrors

Bibliometrics, Scientometrics, Informetrics, Webometrics, and Altmetrics
in Google Scholar Citations, ResearcherID, Researchgate, Mendeley, and Twitter

**AUTHORS**  **DOCUMENTS**  **JOURNALS**  **PUBLISHERS**

## General overview

Displaying core authors 1-20 of 398. Sorted by GS ☐ Check to display related authors as well citations (last 5 years), decreasingly.

Search an author

| Name | Online presence | Google Scholar | | ResearcherID | | ResearchGate | | Mendeley | | Twitter | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Citations | H Index | Citations | H Index | RG Score | Downloads | Readers | Followers | Tweets | Followers |
| Loet Leydesdorff | | 26484 | 73 | 6444 | 44 | 45.14 | 32165 | 0 | 11 | 84 | 375 |
| Eugene Garfield* | | 22622 | 55 | 8790 | 153 | - | - | - | - | - | - |
| Mike Thelwall | | 13840 | 61 | 3593 | 32 | 42.64 | 24989 | 7423 | 36 | 85 | 522 |
| Derek J. de Solla Price | | 13263 | 33 | - | - | - | - | - | - | - | - |
| Francis Narin | | 11297 | 45 | - | - | 32.38 | 795 | - | - | - | - |
| Wolfgang Glänzel | | 10796 | 54 | 4924 | 38 | 41.16 | 10572 | - | - | - | - |
| Ronald Rousseau | | 9570 | 42 | NA | NA | 42.75 | 8066 | - | - | - | - |
| Chaomei Chen | | 9512 | 43 | 1740 | 20 | 34.65 | 31579 | 965 | 3 | 67 | 65 |
| Anthony (Ton) F.J. van Raan | | 9200 | 53 | - | - | 38.47 | 6014 | - | - | 58 | 166 |
| Ben R Martin | | 8975 | 39 | - | - | - | - | - | - | - | - |
| András Schubert | | 8655 | 45 | 4121 | 31 | 39.24 | 1962 | - | - | - | - |
| Peter Ingwersen | | 8356 | 35 | NA | NA | 30.64 | 8600 | - | - | - | - |
| Henk F. Moed | | 8256 | 46 | - | - | - | - | - | - | - | - |
| Blaise Cronin | | 7347 | 43 | - | - | 33.9 | 1891 | - | - | - | - |
| Henry Small | | 7307 | 32 | 3360 | 23 | - | - | - | - | - | - |
| Tibor Braun | | 7231 | 41 | NA | NA | NA | NA | - | - | - | - |

# Deconstructing journals

NEW

OLD

**NEW** BIBLIOMETRICS

**OLD** BIBLIOMETRICS

Documents
(ALT & ALM metrics)

Journals
(Impact Factor)

Authors          Institutions

Authors          Institutions
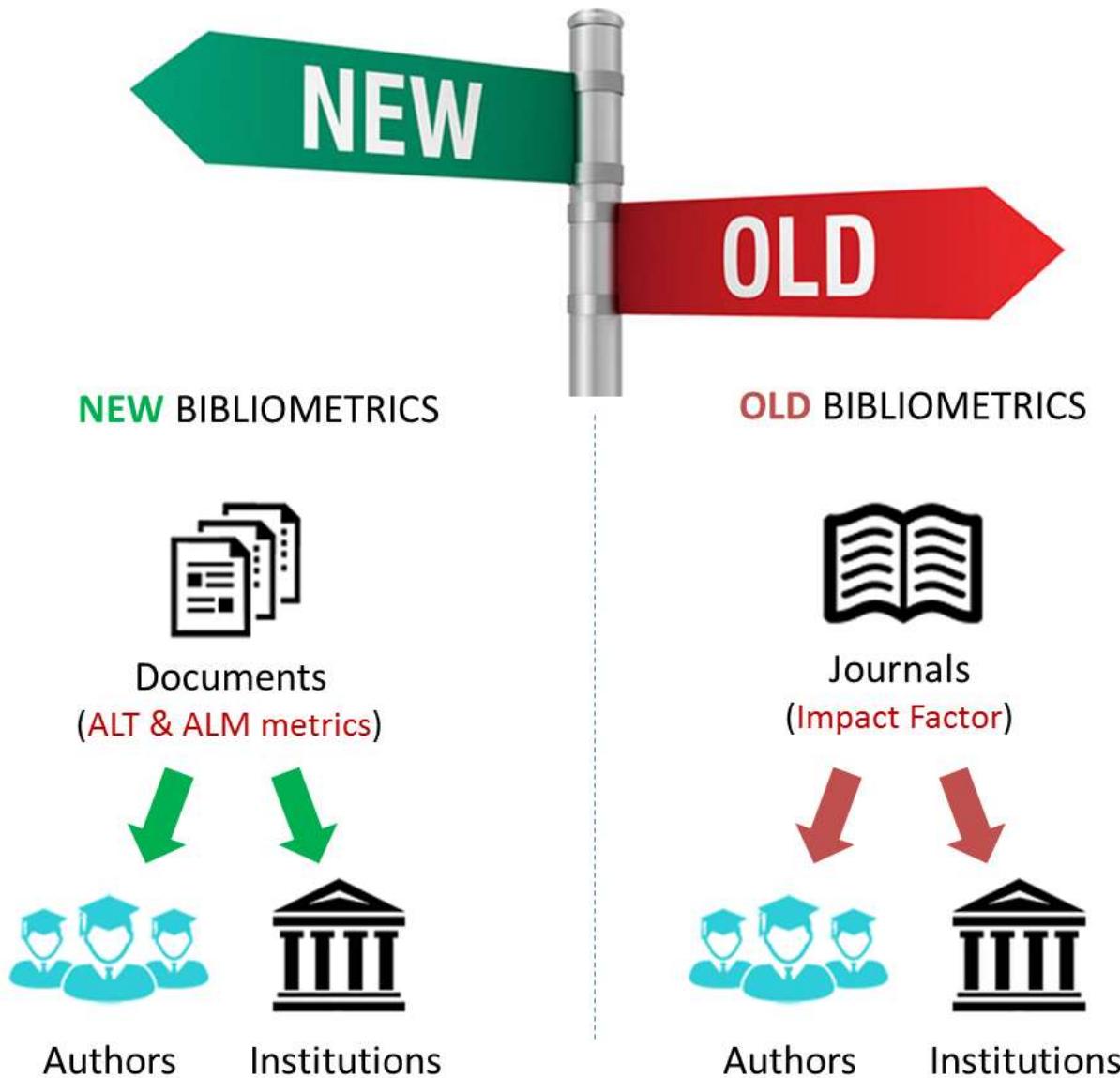
# THE NEXT BIBLIOMETRICS: *ALMETRICS* (AUTHOR LEVEL METRICS) AND THE MULTIPLE FACES OF AUTHOR IMPACT

## La bibliometría que viene: *ALMetrics* (*Author Level Metrics*) y las múltiples caras del impacto de un autor

Enrique Orduña-Malea, Alberto Martín-Martín and Emilio Delgado-López-Cózar

Nota: Este artículo puede leerse traducido al español en:
http://www.elprofesionaldelainformacion.com/contenidos/2016/**may/04_esp.pdf**

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**Alberto Martín-Martín** holds a BSc degree in library and information science, and a MSc degree in scientific information and communication from the *University of Granada*. He received the national award for excellence in academic performance (social sciences) in 2013. He is a member of the *EC3 Research Group* and works as a PhD student in bibliometrics and scientific communication projects; he is currently enjoying a four-year doctoral fellowship at the University of Granada.
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*albertomartin@ugr.es*

**Emilio Delgado-López-Cózar** is a professor of research methods at the *Department of Communication and Information, University of Granada*, and a founding member of the *EC3 Research Group* [*Evaluación de la Ciencia y de la Comunicación Científica*]. Throughout his life he has created a wide range of scientific assessment tools, such as: *h Index Scholar, IN-RECS, IN-RECJ, IN-RECH* (citation index of Spanish journals in the social sciences, legal sciences, and humanities), *Journal Scholar Metrics, H index Spanish journals according to Google Scholar Metrics, Scholar Mirrors, Co-author Index, Publishers Scholar Metrics, Book Publishers Library Metrics, Classic Scholar's Profiles, RESH* (Spanish Journals of Social Sciences and Humanities), *CIRC* (Integrated Classification of Scientific Journals), *Ranking I-UGR of Spanish Universities, EC3 Metaranking of Spanish Universities, Científica*, and others.
http://orcid.org/0000-0002-8184-551X

*Universidad de Granada, Facultad de Comunicación y Documentación*
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## Abstract

The main goal of this article is to describe the purpose and content of a new branch of bibliometrics: *ALMetrics* (Author-Level Metrics). *ALMetrics* is focused on the quantitative analysis of an author's performance by measuring the dimensions of their intellectual activity as shown through varied metric indicators. This article will list, define, and classify the different

# Do we need journals? Are they an endangered species?
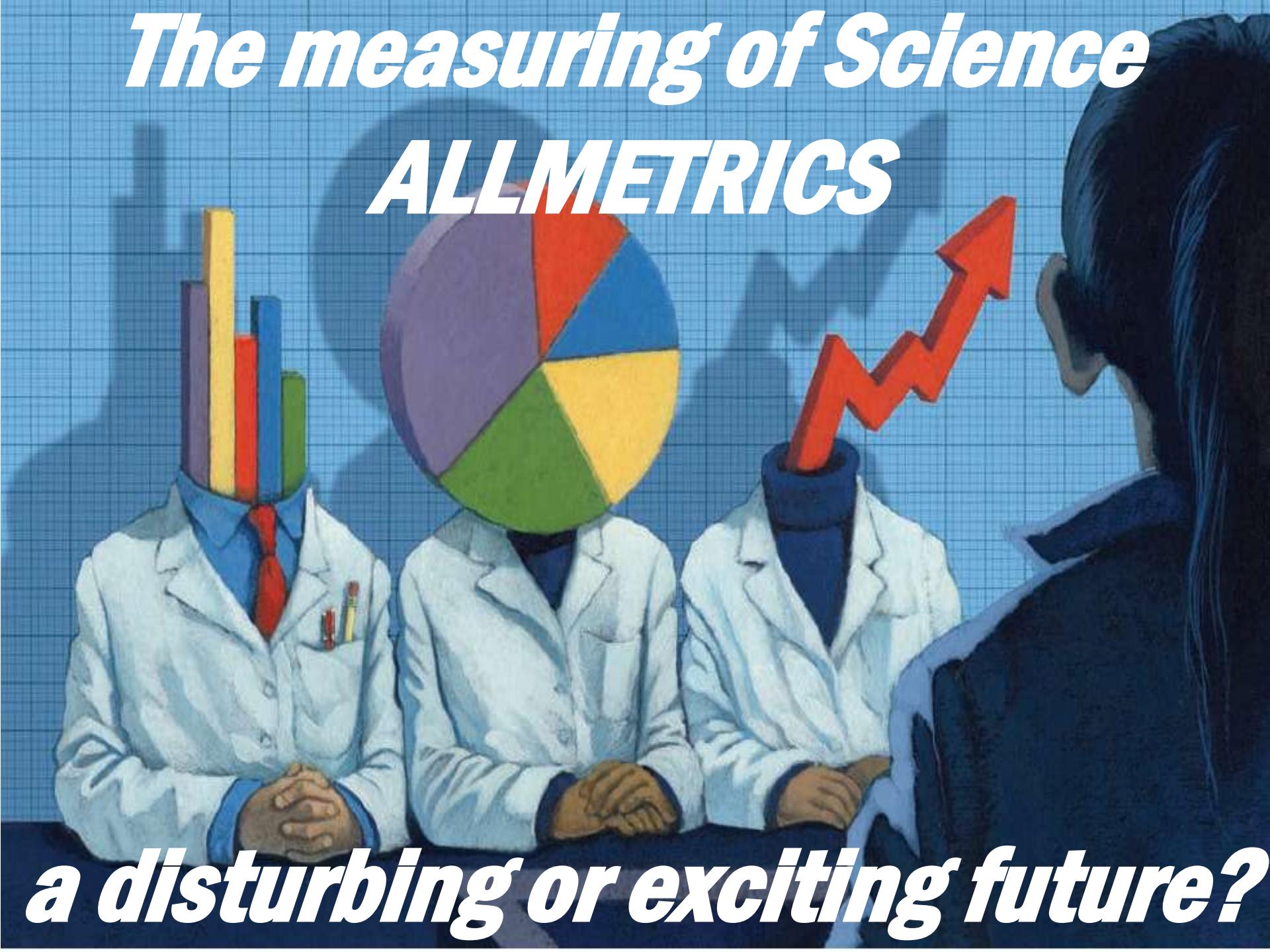
*Narcissistic technologies, and because of that, addictive*

Gamification of the scientific endeavour
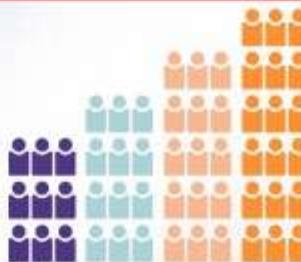
# The role of ego in academic profile services: Comparing Google Scholar, ResearchGate, Mendeley, and ResearcherID

*Academic profiling services are a pervasive feature of scholarly life.* **Alberto Martín-Martín, Enrique Orduna-Malea** *and* **Emilio Delgado López-Cózar** *discuss the advantages and disadvantages of major profile platforms and look at the role of ego in how these services are built and used. Scholars validate these services by using them and should be aware that the portraits shown in these platforms depend to a great extent on the characteristics of the "mirrors" themselves.*

## SPECIAL COLLABORATION

# Metrics in academic profiles: a new addictive game for researchers?

**Enrique Orduna-Malea (1), Alberto Martín-Martín (2) and Emilio Delgado López-Cózar (2).**

(1) Universitat Politècnica de València. Valencia. España.

(2) Universidad de Granada. Granada. España.

Los autores declaran que no existe conflicto de intereses

## ABSTRACT

This study aims to promote reflection and bring attention to the potential adverse effects of academic social networks on science. These academic social networks, where authors can display their publications, have become new scientific communication channels, accelerating the dissemination of research results, facilitating data sharing, and strongly promoting scientific collaboration, all at no cost to the user.

One of the features that make them extremely attractive to researchers is the possibility to browse through a wide variety of bibliometric indicators. Going beyond publication and citation counts, they also measure usage, participation in the platform, social connectivity, and scientific, academic and professional impact. Using these indicators they effectively create a digital image of researchers and their reputations.

However, although academic social platforms are useful applications that can help improve scientific communication, they also hide a less positive side: they are highly addictive tools that might be abused. By gamifying scientific impact using techniques originally developed for videogames, these platforms may get users hooked on them, like addicted academics, transforming what should only be a means into an end in itself.

**Keywords:** Bibliometrics, Academic Profiles, Addiction, Gamification, Social networks, Video games, Adverse effects. Research. ethics, research Behavior, addictive,

## RESUMEN

### Métricas en perfiles académicos: ¿un nuevo juego adictivo para los investigadores?

Pretende este trabajo provocar la reflexión y alertar de los posibles peligros para la ciencia que encierran las nuevas redes sociales académicas que tanto éxito están teniendo en nuestros días. Las redes sociales académicas donde los autores pueden mostrar sus publicaciones se han convertido en nuevos canales de comunicación científica, pues agilizan la diseminación de los resultados de investigación, facilitan la competición de datos y fomentan la colaboración científica de forma externa sin coste alguno.

Una de las novedades principales de estas plataformas, que es lo que las hace enormemente atractivas para los investigadores, consiste en la disponibilidad de una amplia batería de indicadores bibliométricos que van más allá del conteo de publicaciones y citas pues permiten medir el uso, la participación, la conectividad social y el impacto científico, académico y profesional. Sobre estos indicadores se está construyendo la propia imagen y reputación digital de los científicos.

Pues bien, todos estos beneficios de las redes sociales académicas en la mejora de la comunicación científica esconden un lado no tan positivo para la ciencia. Se trata de herramientas muy peligrosas, que pueden convertirse en auténticas adicciones. Mediante la gamificación del impacto científico a través de persuasivas técnicas procedentes de los videojuegos, estas plataformas pueden hacer que los usuarios queden enganchados, como académicos adictos, convirtiendo lo que es un medio en un fin en sí mismo.

**Palabras clave:** Bibliometría, Perfiles académicos, Gamificación, Redes sociales, Videojuegos, Efectos adversos, Ética de la investigación, Comportamiento adictivo.

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- Cuando se despierta, Chris Dancy **analiza los datos que ha registrado su colchón mientras dormía** para saber si se ha movido, ha hablado en sueños o ha rechinado los dientes.
- Toda su vida está vigilada, hasta el sexo. Por eso, Chris **pide a sus parejas que registren y midan su propia actividad en sus encuentros amorosos.** Algunas aceptan; otras, no. Al menos, tiene la caballerosidad de no contarles los resultados.
- Si va a un restaurante o a un concierto, **le piden que se quite sus Google Glass.** «Pero nunca me piden que me quite la cámara que llevo sobre la cabeza».
- **Su correo electrónico también está sometido a análisis**, así como la cisterna del cuarto de baño o el armario de las medicinas.
- En la actualidad, **varias firmas de electrónica le pagan** para estudiar esta 'vida vigilada'.

## Los dispositivos que lleva en su cuerpo

**Google Glass.** Dispositivo de visualización, parecido a unas gafas de realidad aumentada, que se controla con la voz, con funciones similares a las de un smartphone.

**Cámara narrativa.** Suele llevarla en la cabeza y, cada dos segundos, toma fotografías que envía al smartphone.

**Wahoo Blue HR.** Monitor que, instalado bajo la camiseta, controla su frecuencia cardiaca.

**Brazalete FitBit.** Sus sensores miden el rendimiento físico y almacenan sus datos. Se conecta a un ordenador mediante USB.

**Controlador de actividad JawboneUp.** "Lo empecé a utilizar en mayo. Relaciona las estadísticas de tu conducta con las de tus movimientos físicos", explica.

**Pulsioxímetro.** Lo utiliza una vez al día para medir el nivel de saturación de oxígeno en su sangre.

**Body Media FIT.** Banda para el brazo dotada de sensores que miden el rendimiento del cuerpo, dormido o durante la vigilia.

**Relojes inteligentes Pebble y Samsung Gear.** Almacenan los datos procedentes del resto de los sensores.

**Lumoback.** Se coloca en la cintura. Analiza la postura del cuerpo y emite una señal cuando este no está equilibrado.

**iPhone 5S.** Lo utiliza, sobre todo, para recoger y almacenar informaciones personales.

## Y en su casa tiene además...

**Netatmo:** mide el ruido, la calidad del aire y la temperatura de su casa.

**WeMo:** detecta el movimiento y enciende y apaga los dispositivos electrónicos a distancia.

**Aria:** mide las ondas Wi-Fi.

**Hue:** combate el efecto dañino de las ondas Wi-Fi.

**Tagg:** vigila la actividad de sus perros.

**NetGear VueZone:** sistema de vídeo que graba la actividad en el hogar.

**Thermostat Nest:** regula la temperatura por Wi-Fi.

**Nest Protect:** detector de gas.

**Beddit:** colchón inteligente que mide la calidad del sueño.

**Automatic:** analiza su conducción.

**Estimote:** información sobre los objetos de su hogar.

**Cube Sensors:** controla el ruido, la humedad y la presión atmosférica de la casa.

# Thank you very much for your attention
## Emilio Delgado López-Cózar
### edelgado@ugr.es