Scientific research authorship: professional and ethical considerations

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Publication is the final affirmation of scholarly accomplishment. Academic advancement, “publish or perish,” “pride of authorship,” as well as prestige, are other important driving forces

~Anonymous

Presentation outline

- Who is an author and what is authorship?
- Some problems associated with scientific publishing
- Professional considerations for scientific publishing
- Important ethical considerations
- *Publish or perish*
- Plagiarism
- Citations and H-index
- The way forward

Who is an Author?

is 'the beginner or originator of anything; first cause; creator. ***2*** the original writer, as of **a** book; also, one who makes literary compositions his profession.'

Authorship therefore is:

Marriam Webster dictionary defines it as:

- 1. The job or profession of writing
- 2. The identity of the person who has written something
- 3. 4. The source (such as the author) of a piece of writing, music, or a
- 4. The state or act of writing, creating, or causing

Authorship cont'd

The international committee of medical journal editors (ICMJE) has established and periodically reviews criteria for authorship of a scientific article, based on considering the person who has made **substantial intellectual contributions** to the investigation to be the author.

Authorship credit should be based on these 4 criteria:

1. **Substantial contributions** to study conception and design, acquisition of data, or analysis and interpretation of data.

2. **Drafting** the article or revising it critically for important intellectual content.

3. **Final approval** of the version to be published.

4. Agreement to be **accountable** for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Non-Author Contributors

Contributors who meet **fewer** than all 4 of the above criteria for authorship **should not be** listed as authors, but they should be **acknowledged.**

other activities that alone (without other contributions) do not qualify a contributor for authorship are:

acquisition of funding; general supervision of a research group or general administrative support; and writing assistance, technical editing, language editing, and proofreading.

Those whose contributions do not justify authorship may be acknowledged individually or together as a group under a single heading (e.g. under Acknowledgement), and their contributions should be specified (e.g., "served as scientific advisors," "critically reviewed the study proposal," "collected data," "provided and cared for study patients", "participated in writing or technical editing of the manuscript")

Specific problems concerning scientific Authorship

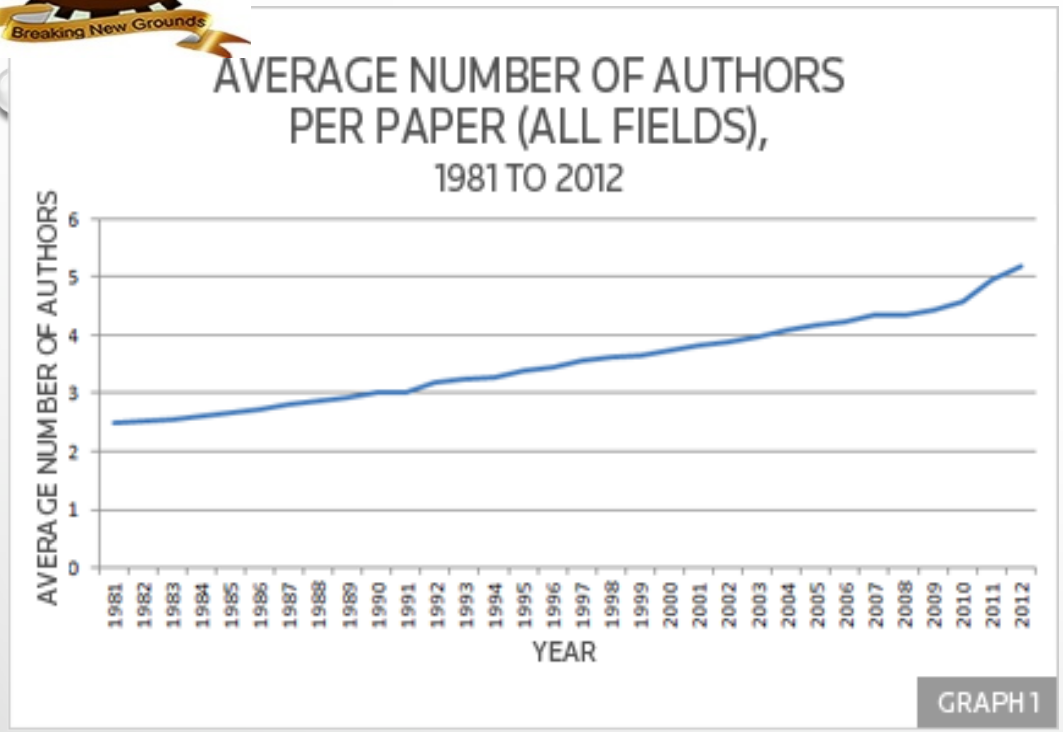
- Almost limitless proliferation of authors
- Issue of single/lead/co/multiple authorship and associated implications
- Publishers/publishing houses- Elsevier, Taylor and Francis, IWA publishing, IEEE, Sage, Springer, Wiley interscience etc
- Plagiarism
- Publish or perish syndrome
- Citations
- H-index
- Digital object identifier (DOI)-what does it mean?
- Project design-Gomez & Gomez: stat. procedures for Agric. res.

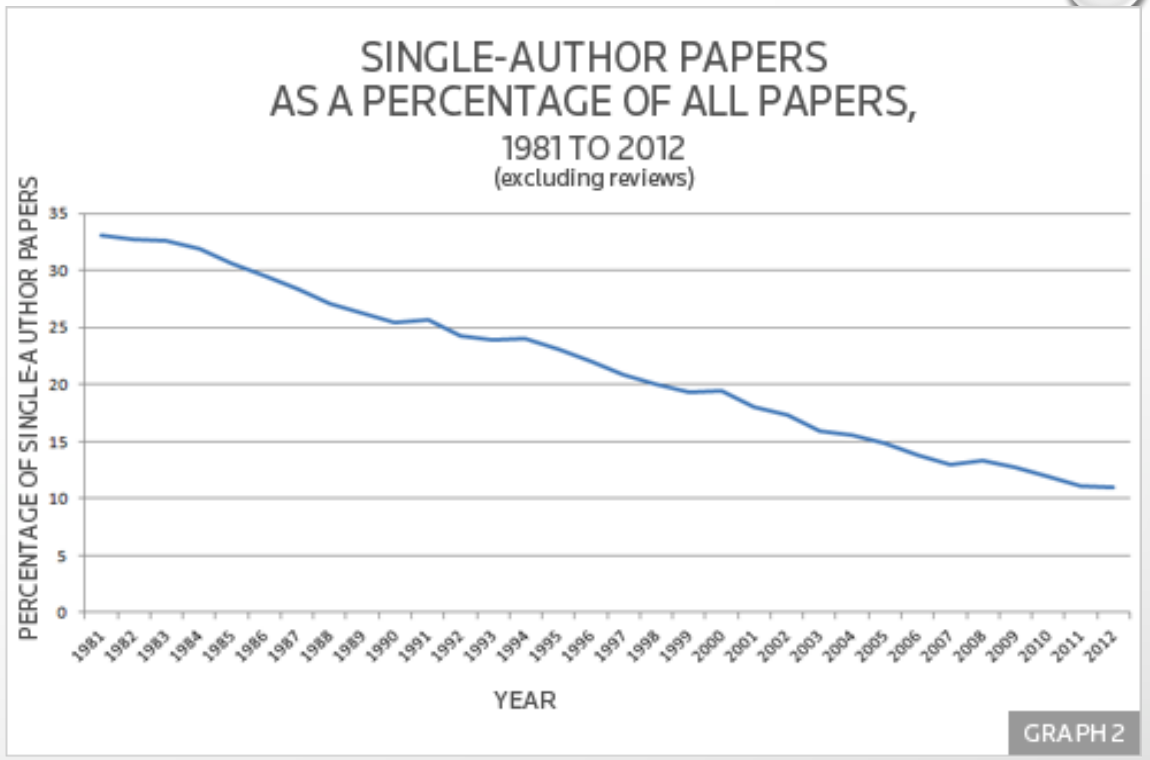
Single authorship

A Single Author Is:

- Who meets the **4 criteria** of authorship By fulfilling the ICMJE guidelines
- Whose only name appears on a manuscript/work/art as the initiator/originator of the idea therein presented
- He/she is also the corresponding author
- He is the lead, first and only author
- Willing to take credit for the paper/article published and is also ready to bear responsibility for its contents

Global trends of single authorship

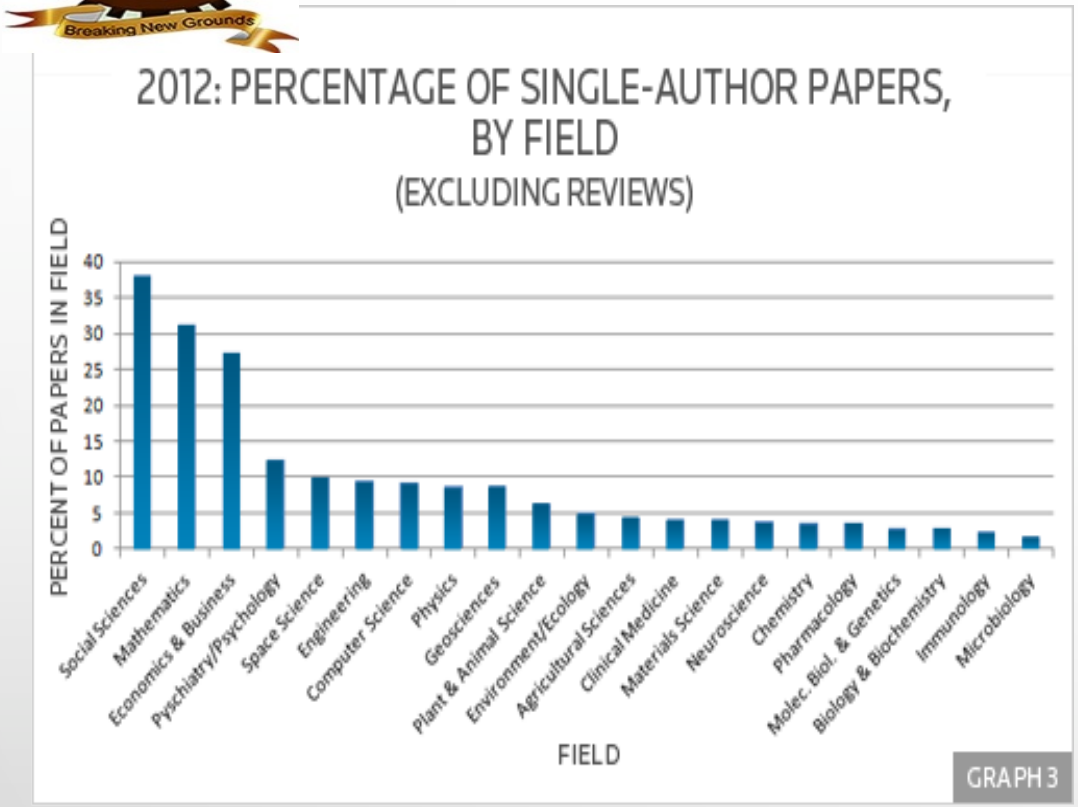


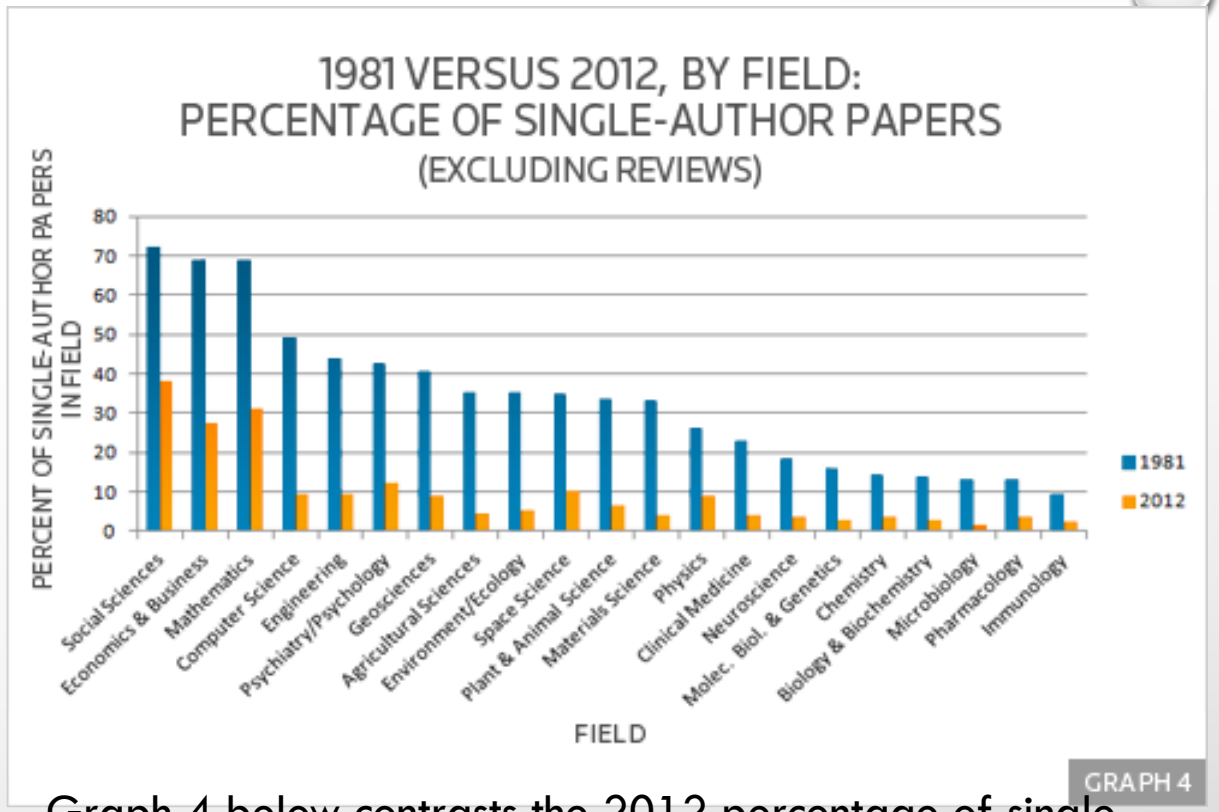


Graph 1 tracks this progression, from 2.48 authors in 1981, through a comparatively gradual phase in which an average of 3 authors in the early 1990s transitioned into 4 by the early 2000s, proceeding in fairly short order to exceed 5 in 2012—a doubling of the 1981 figure

Graph 2 below records the percentage of single-author papers, out of all Thomson Reuters-indexed papers, from 1981 to 2012. In 1981, more than 30% of papers listed a single author. By 2012, the percentage had shrunk to 11

Global trends of single authorship cont'd





Graph 3 captures the number of lone-author papers as a percentage of all papers in each of 21 main subject areas, as of 2012.

Graph 4 below contrasts the 2012 percentage of single-authored papers in each field against the level recorded in 1981. (The fields are ordered according to the 1981 percentage.)

The data and citation records are from Thomson Reuters Web of ScienceTM. Web of ScienceTM is a registered trademark of Thomson Reuters.

Lead Authorship

A lead or first author is:

- One of the many multiple authors that contributed to the manuscript that is designated a lead author due who performs the following :
- Takes the overall responsibility for the manuscript
- Is usually the corresponding author i.e Someone who takes charge of getting approval from all the other authors and communicating with the journal
- Is typically the first author of the paper, which means he/she has made the most significant contribution to the research, and has also written and edited a major part of the work

Co-Authorship

Anyone else who fulfills the authorship criteria can qualify to be a co-author of the paper.

According to the ICMJE guidelines anyone who fulfils all of the following criteria can be a co-author:

1. Contributes significantly to the conception, design, execution, and/or analysis and interpretation of data

2. Participates in drafting and/or revising part of the manuscript for intellectual content

3. Approves of the version to be published

4. Agrees to be accountable for all aspects of the work

Assigning Authorship

1. Deference to seniority should not automatically equate to lead authorship status, but very often it does.
2. The second assumption is that having a supervisor or senior author listed will improve both recognition and the chances of publication in a prestigious journal.

Avoiding Conflict

No matter how many hierarchical ranks exist in your department, it is wise not to transfer the same bureaucratic headaches to your authorship team. There can be only one "**lead author**", and the aim should be to recognize the remaining members as "**co-authors**" who agree, in advance, to what tasks they will each be responsible for. Any issues about the perceived fairness of such designations can then be addressed in advance

Ordering of authors

Order of authorship

Authors are responsible for determining authorship and for specifying the order in which two are more author's name appear, in the byline. The general rule is that the name of the principle contributor should appear first, with subsequent names in order of decreasing contribution, but this convention can vary from field to field.

Authorship - Order & Abuses

- General principles for who is listed first
  - First Author
    - Conducts and/or supervises the data generation and analysis and the proper presentation and interpretation of the results
    - Puts paper together and submits the paper to journal
  - Corresponding author
    - The first author or a senior author from the institution
      - Particularly when the first author is a PhD student or postdoc, and may move to another institution soon.
- Abuses to be avoided
  - Ghost Authors: leaving out authors who should be included
  - Gift Authors: including authors who did not contribute significantly

ELSEVIER Building Insights. Breaking Boundaries.™

Ordering of authors cont'd

4. "Percent-contribution-indicated" (PCI) approach

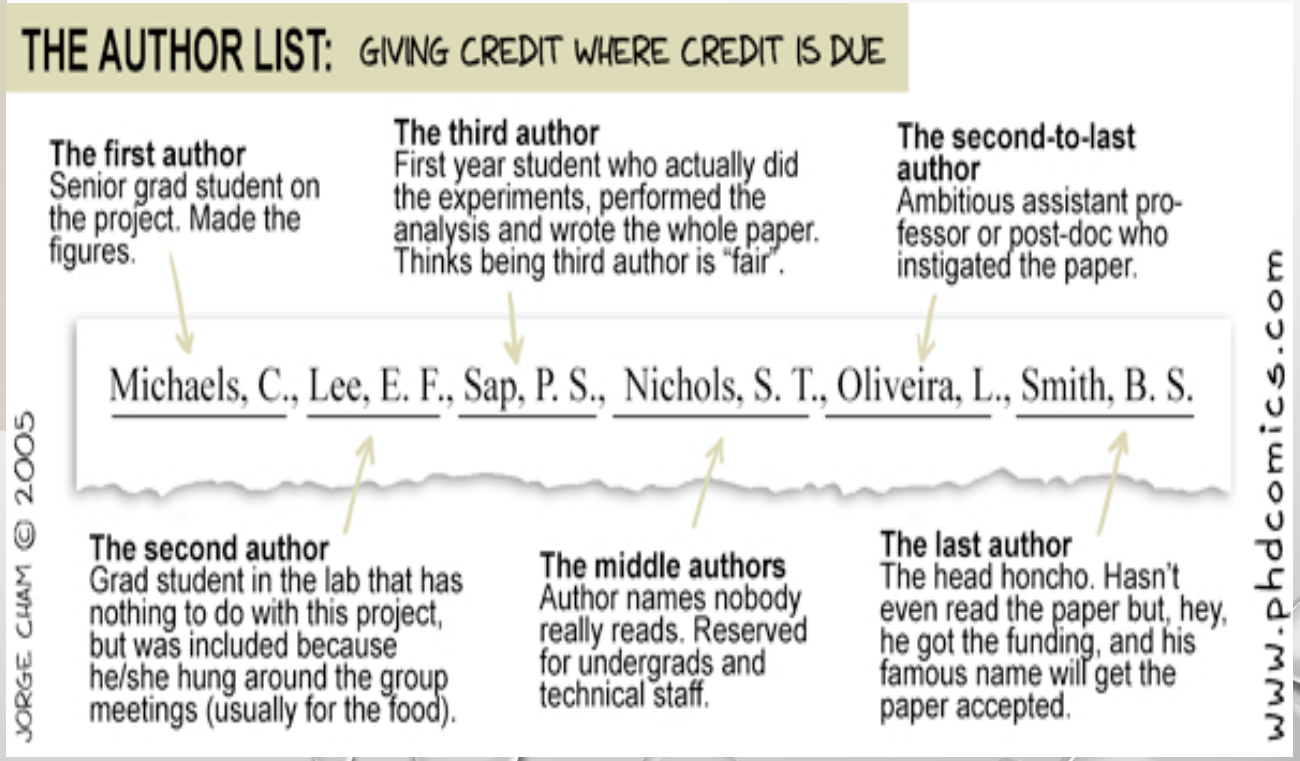
- Author's contribution expressed in percentage terms, using various scoring systems.

Scenario one:

Lead/first author takes ~60%
Second author takes ~40%
In a 2-authored manuscript

Scenario two:

Lead author takes ~50%
Second author takes ~30%
Third author takes ~20%
In a 3 authored manuscript



Professional considerations in scientific publishing

- Authorship is a privilege and not a right. The goal of any publication is the advancement of knowledge. Responsible, professional and ethical authorship requires that the work be trustworthy, truthful and fair.
- **Truthfulness** means that false claims are not present, including the claim of authorship.
- **False claims** must be distinguished from errors or inaccuracies, which occur in up to 20% of manuscripts
- **Trustworthy** means that the authors have attempted to eliminate bias in analyzing the truthful information presented to the readers
- **Fairness** is the public disclosure of the affiliations of those who participated in the study and its preparation
- It is important that **all authors agree** on the truthfulness, trustworthiness and fairness of the manuscript before submission for publication. Furthermore, authors should be ethical, accountable and independent

Ethical standards for publication Scientific journals

- To give special relevance to the ethical aspect of publishing scientific articles, each article submitted for consideration must meet the following requirements:

1. The corresponding author has the consent of all the authors for the submission and publication of the article that was submitted for review.

2. All the authors have substantially contributed to the article, without omitting any person, and the contribution of each author is specified.

3. The article is an original document that has not been previously published and has not been simultaneously submitted for review to another journal (presentations to scientific conferences are excluded from this definition).

4. The article does not contain any unpublished material copied from other authors without their consent.

Ethical standards for publication Scientific journals cont'd

5. All data included in the article that come from previous studies have been referenced, regardless of whether or not they are from the same authors. If an article submitted for review is a sub-analysis of previously published project results, the publication must always be cited.
6. The article shall be kept on file in the *journal* and will be considered a valid publication, provided that it meets every one of the abovementioned criteria.
7. If any of the abovementioned criteria is not met, the authors must notify *the journal* immediately so that it can remove the publication.
8. *The journal* reserves the right to return to the author any article that does not meet the abovementioned guidelines.

Integrity in Research

- **Integrity in research** according to the national research council of the national academies, integrity in research can be defined as a series of **good practices,** which include:

- Intellectual honesty in proposing, performing, and reporting research.
- Accuracy in representing contributions to research proposals and reports.
- Fairness in peer review.
- Collegiality in scientific interactions, including communications and sharing of resources.
- Transparency in conflicts of interest or potential conflicts of interest.
- Protection of human subjects in the conduct of research.
- Humane care of animals in the conduct of research.
- Adherence to the mutual responsibilities between investigators and their research teams

Publish *or* Perish?

Publish or perish" is a phrase coined to describe the pressure in academia to rapidly and continually publish academic work to sustain or further one's career.

The pressure to publish has been cited as a cause of poor work being submitted to academic journals

Publish *or* Perish cont'd

- **Advantages**
- Research-oriented institutions may attempt to manage the unhealthy aspects of the publish or perish practices, but their **administrators often argue that some pressure to produce cutting-edge research is necessary to motivate scholars early in their careers to focus on research advancement,** and learn to balance its achievement with the other responsibilities of the professorial role. The call to abolish tenure is very much a minority opinion in such setting

- **Disadvantages**
- The pressure to publish or perish also detracts from the time and effort professors can devote to teaching undergraduate courses and mentoring graduate students
- Publish-or-perish is linked to scientific misconduct or at least questionable ethics
- It has also been argued that the quality of scientific work has suffered due to publication pressures
- The publish or perish culture also perpetuates bias in academic institutions

plagiarism.org

All of the following are considered plagiarism:

turning in someone else's work as your own

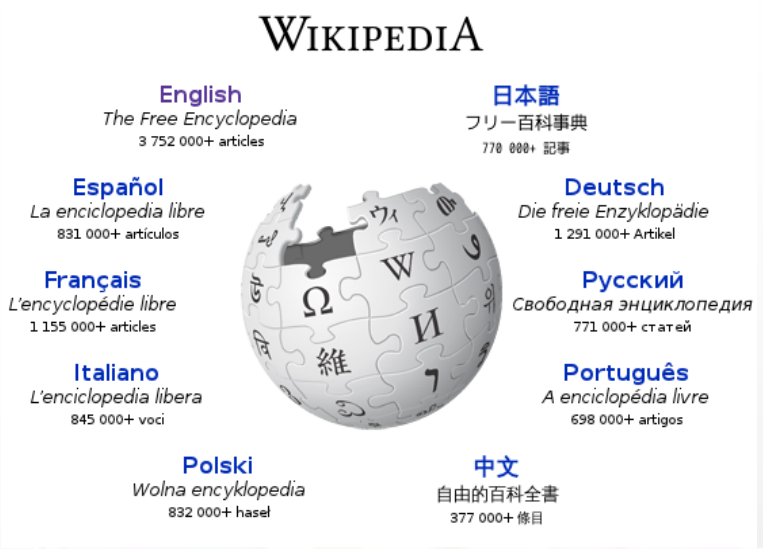
copying words or ideas from someone else without giving credit

giving incorrect information about the source of a quotation

changing words but copying the sentence structure of a source without giving credit

copying so many words or ideas from a source that it makes up the majority of your work,

whether you give credit or not (see our section on "fair use" rules)



Consequences of Plagiarism

Consequences of Plagiarism

- **Destroyed student/staff reputation**
- **Destroyed professional reputation**
- **Destroyed academic reputation:**
- **Legal repercussions:** the legal repercussions of plagiarism can be quite serious. Copyright laws are absolute. One cannot use another person's material without citation and reference. **An author has the right to sue a plagiarist.**
- **Monetary repercussions:** in the case where an author sues a plagiarist, the author may be granted monetary restitution. The offending plagiarist could have to pay monetary penalties.
- **Plagiarized research:** Neither ignorance nor stature excuses a person from the ethical and legal ramifications of committing plagiarism

Types of Plagiarism

Verbatim plagiarism

If you copy language **word for word** from another source and use that language in your paper, you are plagiarizing *verbatim*.

Mosaic plagiarism

- If you copy bits and pieces from a source (or several sources), changing a few words here and there without either adequately paraphrasing or quoting directly, the result is *mosaic plagiarism*. Even if you don't intend to copy the source, you may end up committing this type of plagiarism as a result of careless note-taking and confusion over where your source's ideas end and your own ideas begin.

Inadequate paraphrase

When you paraphrase, your task is to distill the source's ideas in your own words. It's not enough to change a few words here and there and leave the rest; instead, you must completely restate the ideas in the passage in your own words. If your own language is too close to the original, then you are plagiarizing, even if you do provide a citation.

In order to make sure that you are using your own words, it's a good idea to put away the source material while you write your paraphrase of it. If you do want to use some of the author's words for emphasis or clarity, you must put those words in quotation marks and provide a citation.

Types of Plagiarism cont'd

Uncited paraphrase

When you use your own language to describe someone else's idea, that idea still belongs to the author of the original material. Therefore, it's not enough to paraphrase the source material responsibly; you also need to cite the source, even if you have changed the wording significantly.

Uncited quotation

When you put source material in quotation marks in your essay, you are telling your reader that you have drawn that material from somewhere else. But it's not enough to indicate that the material in quotation marks is not the product of your own thinking or experimentation: you must also credit the author of that material and provide a trail for your reader to follow back to the original document.

Using material from another student's work

In some courses you will be allowed or encouraged to form study groups, to work together in class generating ideas, or to collaborate on your thinking in other ways. Even in those cases, it's imperative that you understand whether all of your writing must be done independently, or whether group authorship is permitted. Most often, even in courses that allow some collaborative discussion, the writing or calculations that you do must be your own

Tools for detecting plagiarized substances/works

plagiarism checker & plagiarism detection

:::plagium™

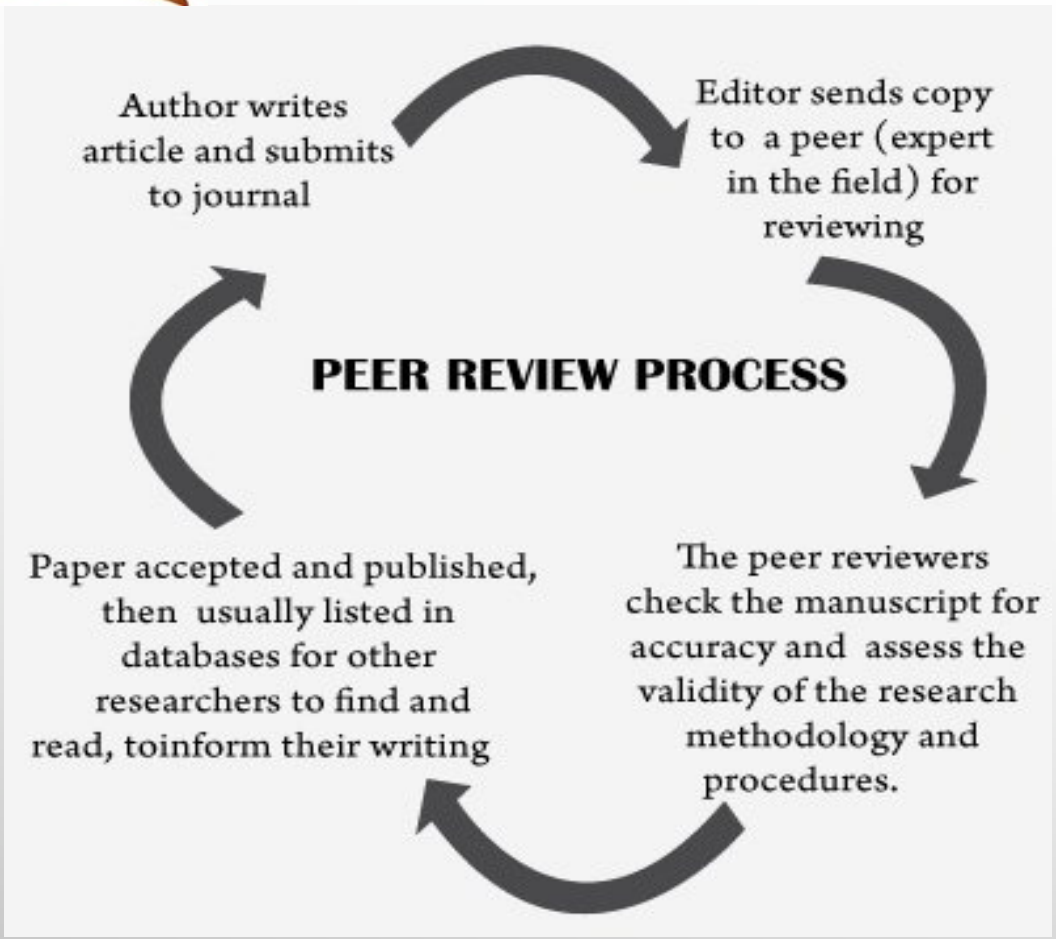
http://www.plagium.com/

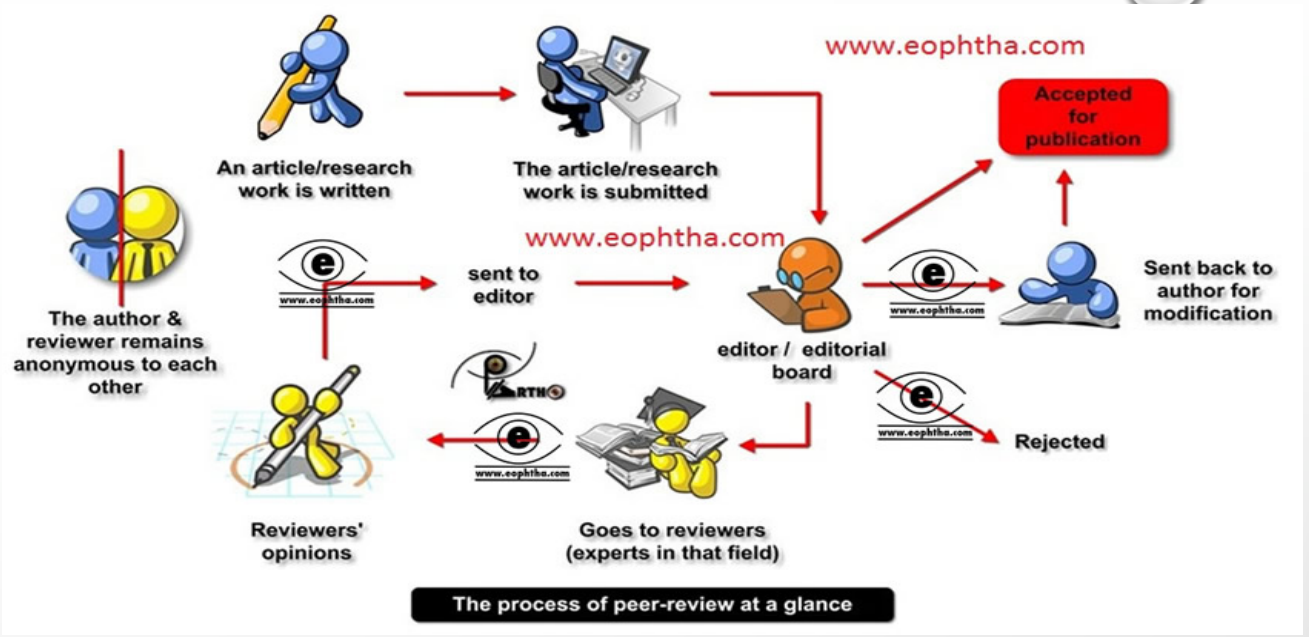
http://www.ithenticate.com/

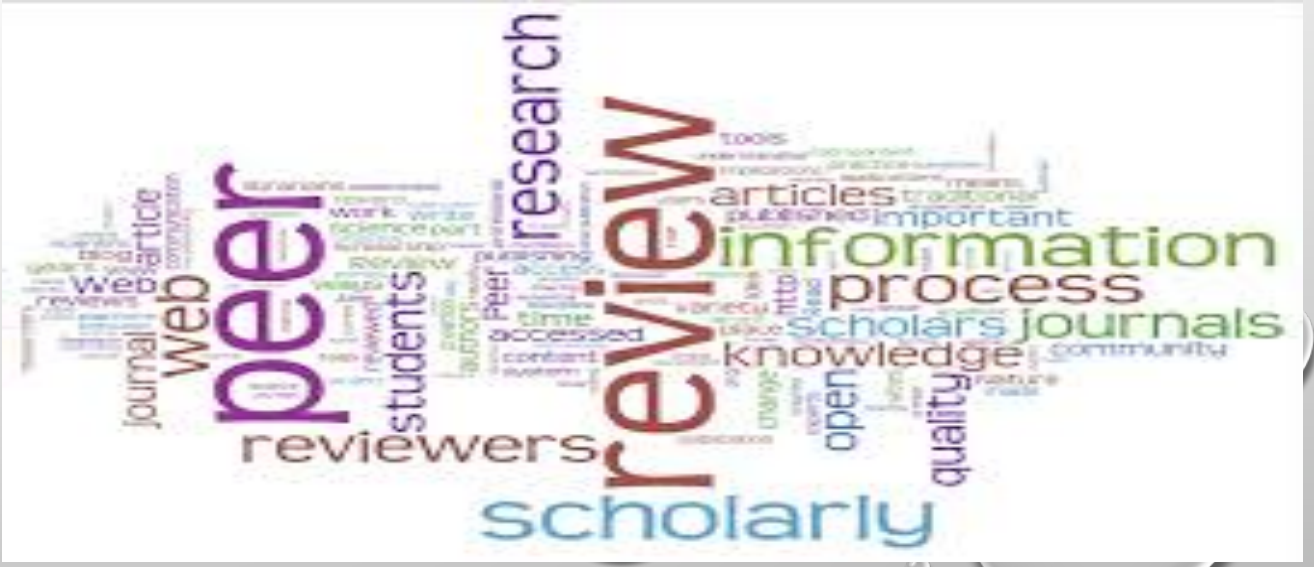
iThenticate®

http://www.plagtracker.com/

Peer-reviewed mechanism







Tools for measuring visibility of one's research

- The **impact factor** (**IF**) or **journal impact factor (JIF)** of an ACADEMIC JOURNAL is a measure reflecting the yearly average number of CITATIONS to recent articles published in that journal.
- Impact factors are calculated yearly starting from 1975 for those journals that are listed in the journal citation reports
- Essentially it measures the journal(s) visibility and as such is/are guided by the quality of contents that is presented to the global audience.
- Some of the factors considered in accepted manuscripts in IF journals include but not limited to: novelty, originality, replicability, its global appeal, addressing specific regional or global challenge etc
- Some have high rate of rejection due to the lack of some of these things itemized.

THOMSON REUTERS

Journals and their cited impact factor

BIOCHEMISTRY JOURNALS

Biochemistry & Analytical Biochemistry	2.63
Journal of Plant Biochemistry& Physiology	1.55

MEDICAL SCIENCES JOURNALS

Journal of Cancer Science & Therapy	3.09
Journal of Bone Research	1.83

BUSNESS & MANAGEMENT JOURNALS

Arabian Journal of Business & Mgt Review	1.089
Journal of Entrepreneurship &Organization Management	0.368

CHEMICAL ENGINEERING JOURNALS

Journal of Chemical Engineering & Process Technology	1.7
Journal of Hazardous Materials	6.065
Desalination	5.527

ENGINEERING JOURNALS

International Journal of Innovative Research in Computer & Communication Engineering	5.618
Journal of Civil & Environmental Engineering	2.15

ENVIRONMENTAL JOURNALS

Waste Management	4.030
Journal of Water and Climate Change	0.917
Soil and Water Research	0.934

AGRICULTURE JOURNALS

Agriculture & Forest Meteorology	3.887
Biosystems Engineering	2.044

Waste Management-Elsevier publishers

- Journal Metrics

- CiteScore: **4.00** i
- Impact Factor: **4.030** i
- 5-Year Impact Factor: **4.669** i
- Source Normalized Impact per Paper (SNIP): **2.044** i
- SCImago Journal Rank (SJR): **1.354** i

- Journal Citation Reports

impact Factor, 5-year Impact Factor, Immediacy Index, Cited Half-life, Eigenfactor, Article Influence

- Citescore

this Competitor To The Journal Impact Factor Is From Elsevier And Based On The Journals Indexed By Scopus.

- Eigenfactor.Org

eigenfactor, Article Influence

- Google Scholar Metrics

provides H5-index and H5-median.

- Scopus Journal Analyzer

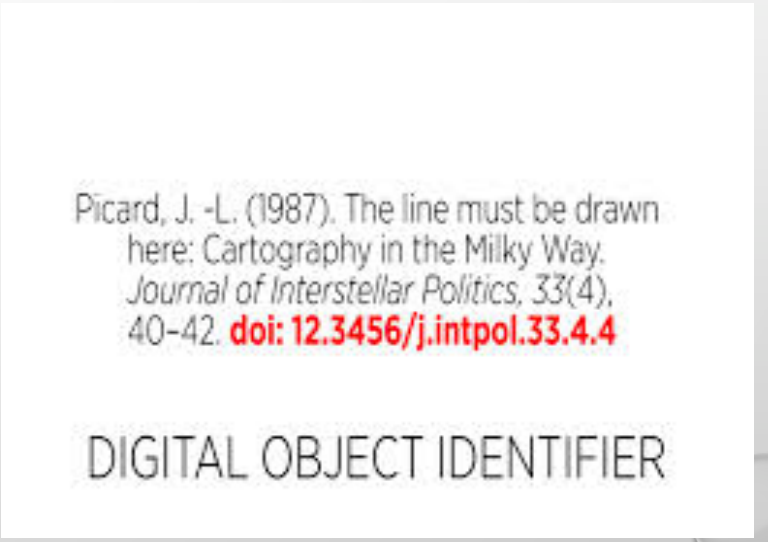
SJR, SNIP, IPP

- Scimago Journal & Country Rank

SJR, Country Rankings

Digital Object Identifier

- A digital object identifier or DOI is a persistent identifier or handle used to uniquely identify objects, standardized by the ISO
- **DOIs are in wide use mainly to identify academic,** professional, and government information, such as journal articles, research reports and data sets, and official publications though they also have been used to identify other types of information resources, such as commercial videos.
- **The DOI system to provide a form of persistent identification in which each DOI name permanently and unambiguously identifies the object to which it is associated.**
- For example, the doi 10.1000/182 can be included in a reference or hyperlink as https://doi.Org/10.1000/182. This approach allows users to click on the DOI as a normal hyperlink



Citations

- **Citation** is a reference to a published or unpublished source
- Citation is an abbreviated alphanumeric expression embedded in the body of an intellectual work that denotes an entry in the bibliographic references section of the work for the purpose of acknowledging the relevance of the works of others to the topic of discussion at the spot where the citation appears

What is a "citation"?

- To **cite** means to note or refer to something. It is an action word (a verb).
- A **citation** is a reference, or a mention. It is a thing (a noun).

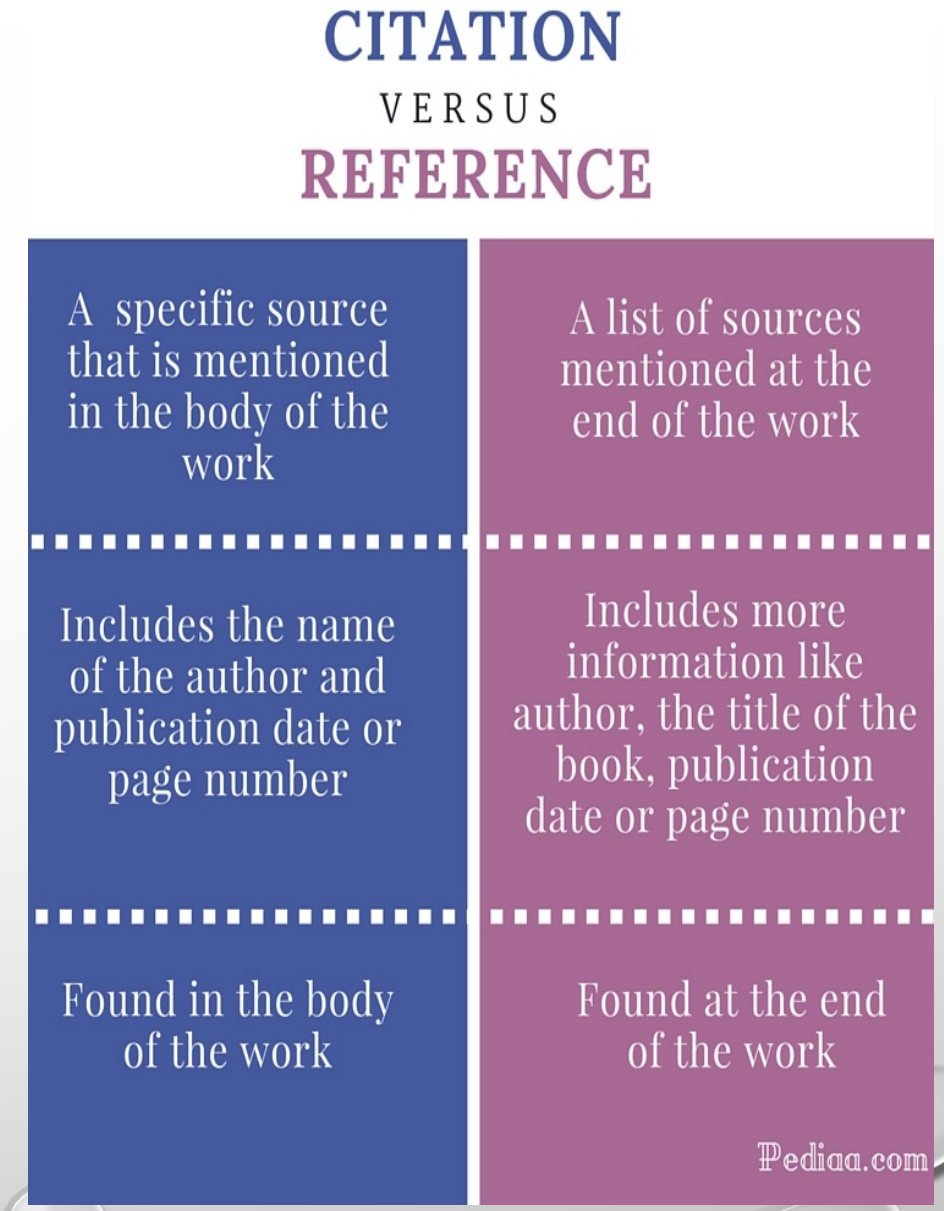
When we do research, it is important to refer to or mention where we found our information.

Scholarship is a collaborative activity. We build our understanding on the work of others. It is only fair to acknowledge this.

Authors' Citations

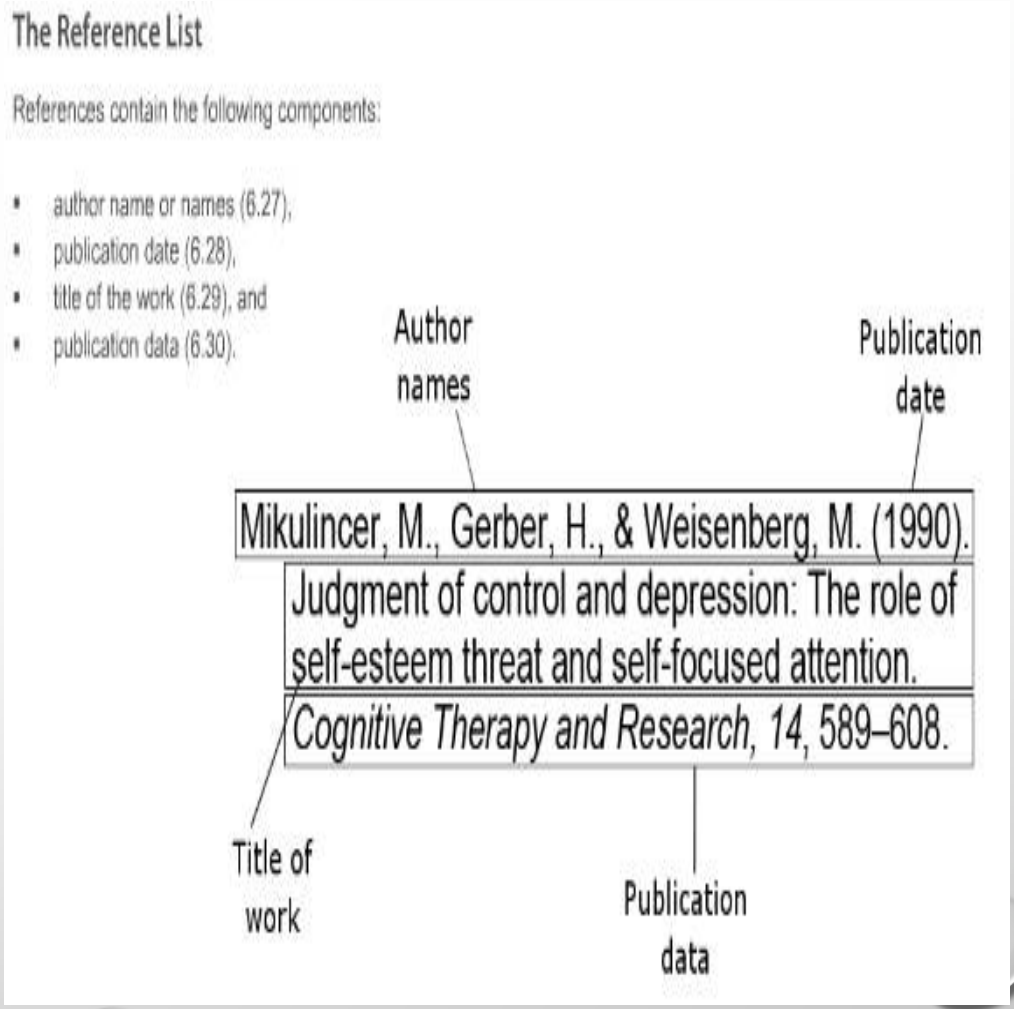
Citations have several important purposes:

- To uphold intellectual honesty (or avoiding plagiarism)
- To attribute prior or unoriginal work and ideas to the correct sources
- To allow the reader to determine independently whether the referenced material supports the author's argument in the claimed way, and
- To help the reader gauge the strength and validity of the material the author has used



Citations cont'd

- The forms of citations generally subscribe to one of the generally accepted citations systems, such as the
- Oxford
- Harvard
- MLA
- American sociological association (ASA)
- American psychological association (APA)
- And other citations system
- The Vancouver system and parenthetical referencing
- The Vancouver system uses sequential numbers in the text, either bracketed or superscript or both



Citations cont'd

Harvard referencing style

Vancouver referencing style

References

Adamovich SV, Archambault PS, Ghafouri M, Levin MF, Poizner H, Feldman AG (2001) Hand trajectory invariance in reaching movements involving the trunk. Exp Brain Res 138:288–303

Alexandrov A, Frolov A, Massion J (1998) Axial synergies during human upper trunk bending. Exp Brain Res 118:210–220

Bernstein NA (1967) The coordination and regulation of movements. Pergamon, London

Feldman AG, Levin MF (1995) The origin and use of positional frames of reference in motor control. Behav Brain Sci 18:723–806

We cite three sources [1–3]. We then cite one other source [4]. Finally we cite all our sources, but in a different order [1–4]

References

[1] Aristotle. *De Anima*. Ed. by Robert Drew Hicks. Cambridge: Cambridge University Press, 1907.

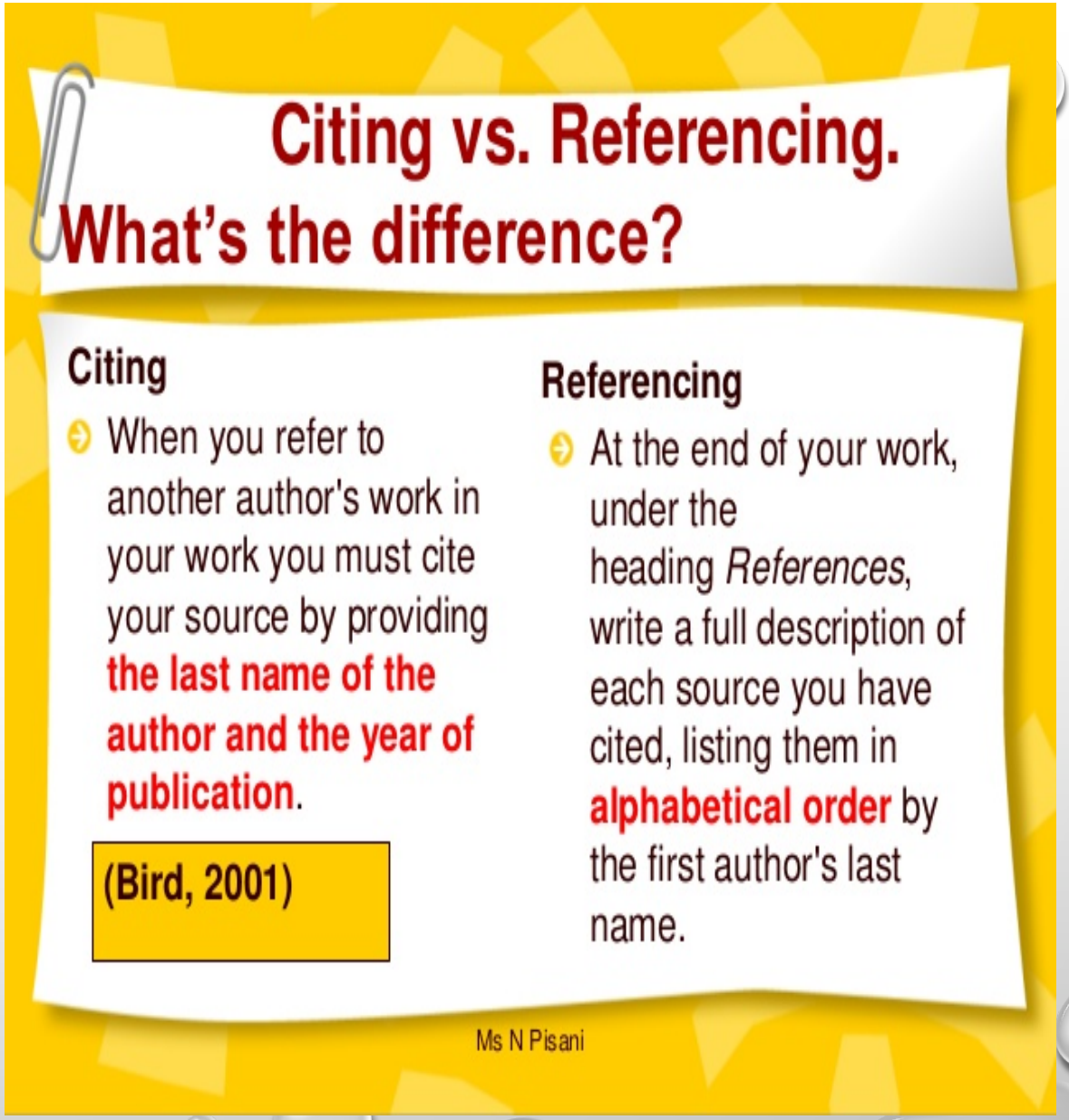
[2] Aristotle. *Physics*. Trans. by P. H. Wicksteed and F. M. Cornford. New York: G. P. Putnam, 1929.

[3] Aristotle. *Poetics*. Ed. by D. W. Lucas. Clarendon Aristotle. Oxford: Clarendon Press, 1968.

[4] Nancy Worman. *The Cast of Character. Style in Greek Literature*. Austin: University of Texas Press, 2002.

Citations cont'd

Cite all listed references and list and cited references



H-Index

H index

The h index takes into account two things:

1. The researcher's PRODUCTIVITY (number of publications a researcher has produced)
2. The IMPACT of that researcher's publications (how many citations the researcher's publications have received)

H index

What is the h-index?

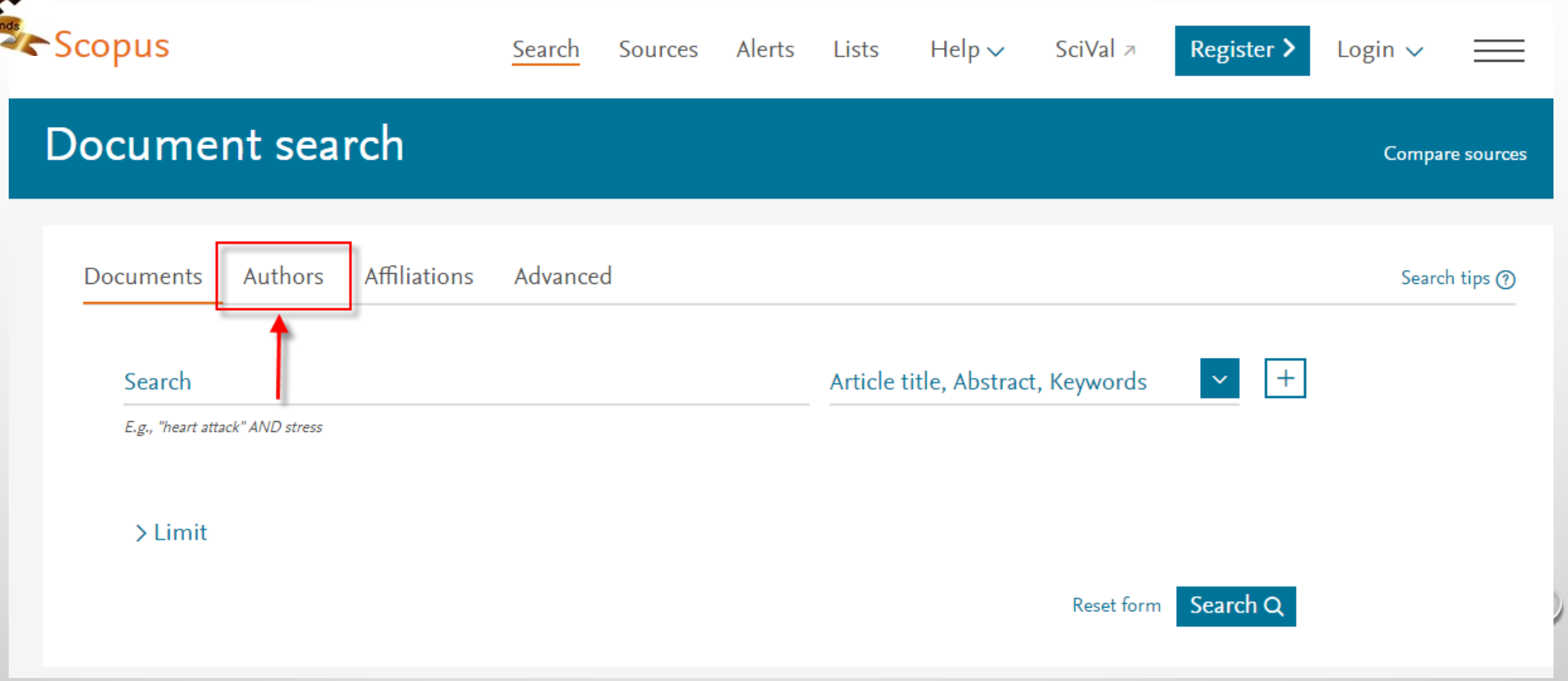
I propose the index *h*, defined as the number of papers with citation number equal to or greater than *h*, as a useful index to characterise the scientific output of a researcher (Hirsch, 2005)

Deakin University CRICOS Provider Code: 00113B

The h-index was developed by J.E. Hirsch and is an index that attempts **to measure both the productivity and impact of the published work of a scientist or scholar**. In Scopus, the *h*-index is not a static value; it is calculated live on a set of results each time you look it up. The calculation was suggested by Hirsch and it can be summed up as follows:

"A scientist has index *h* if *h* of his or her Np papers have at least *h* citations each, and the other (Np *h*) papers have no more than *h* citations each."

H-Index

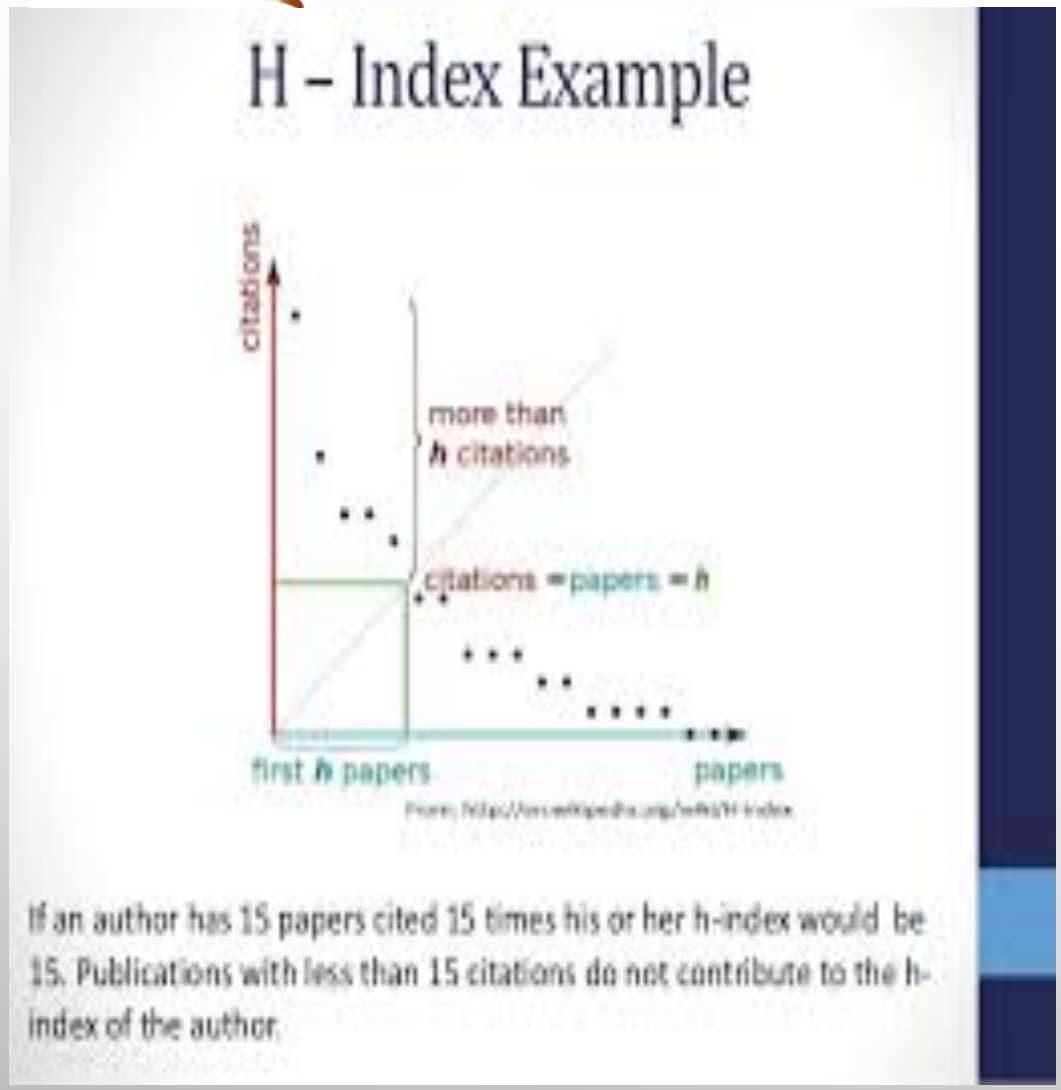


www.scopus.com

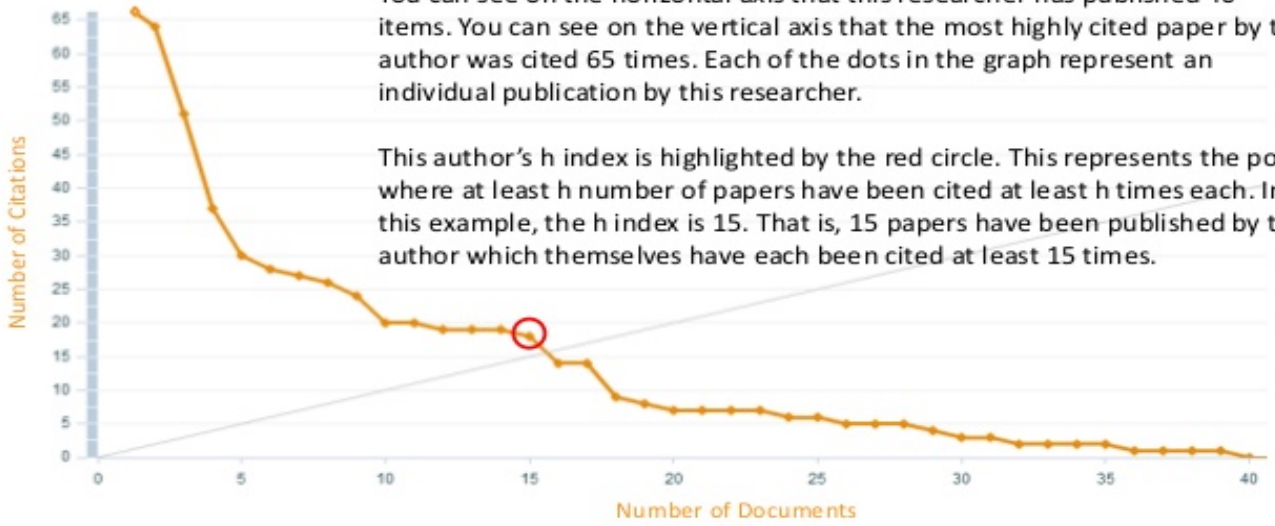
H-Index

The ***h*-index** is a simple way to measure the impact of your work and other peoples' research. It does this by looking at the number of highly impactful publications a researcher has published. The higher the number of cited publications, the higher the *h*-index, regardless of which journal the work was published in.

H-Index



Example

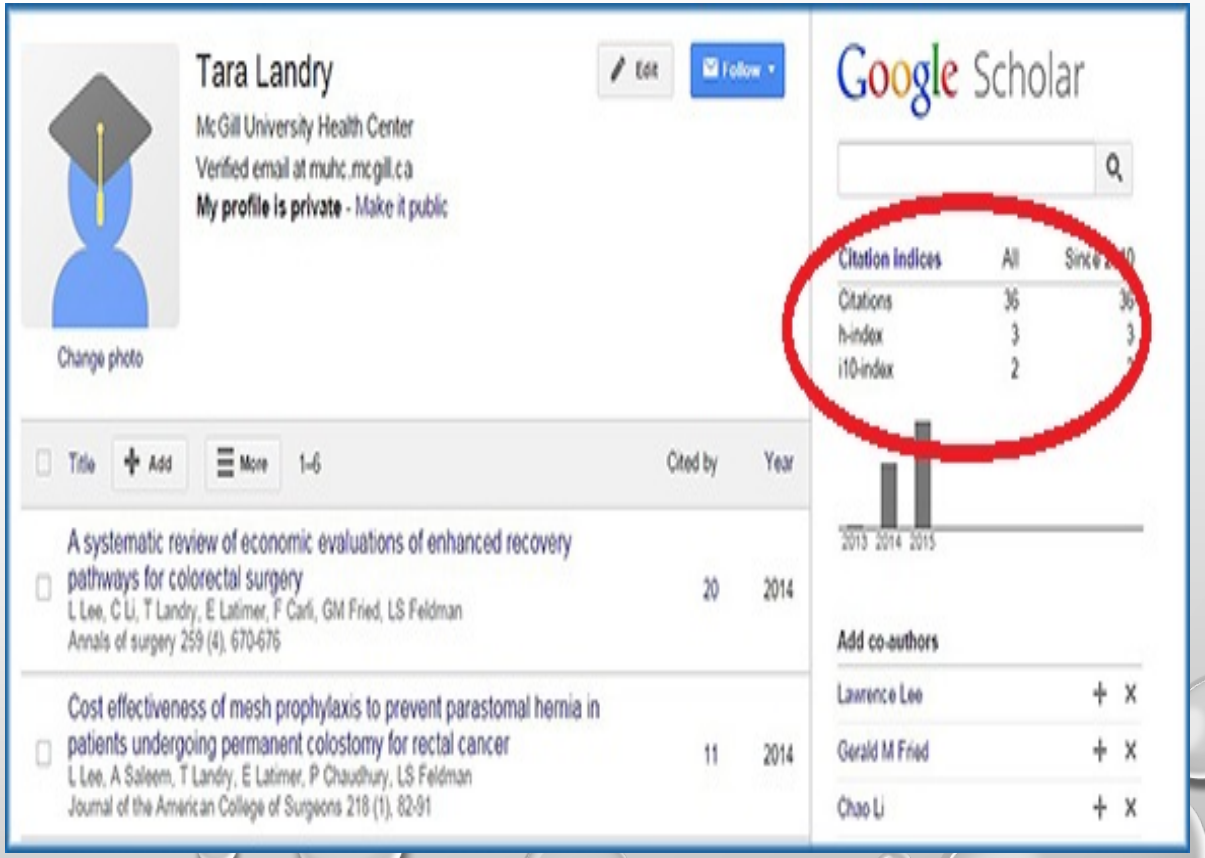


You can see on the horizontal axis that this researcher has published 40 items. You can see on the vertical axis that the most highly cited paper by this author was cited 65 times. Each of the dots in the graph represent an individual publication by this researcher.

This author's h index is highlighted by the red circle. This represents the point where at least h number of papers have been cited at least h times each. In this example, the h index is 15. That is, 15 papers have been published by this author which themselves have each been cited at least 15 times.

CC BY

H-Index cont'd

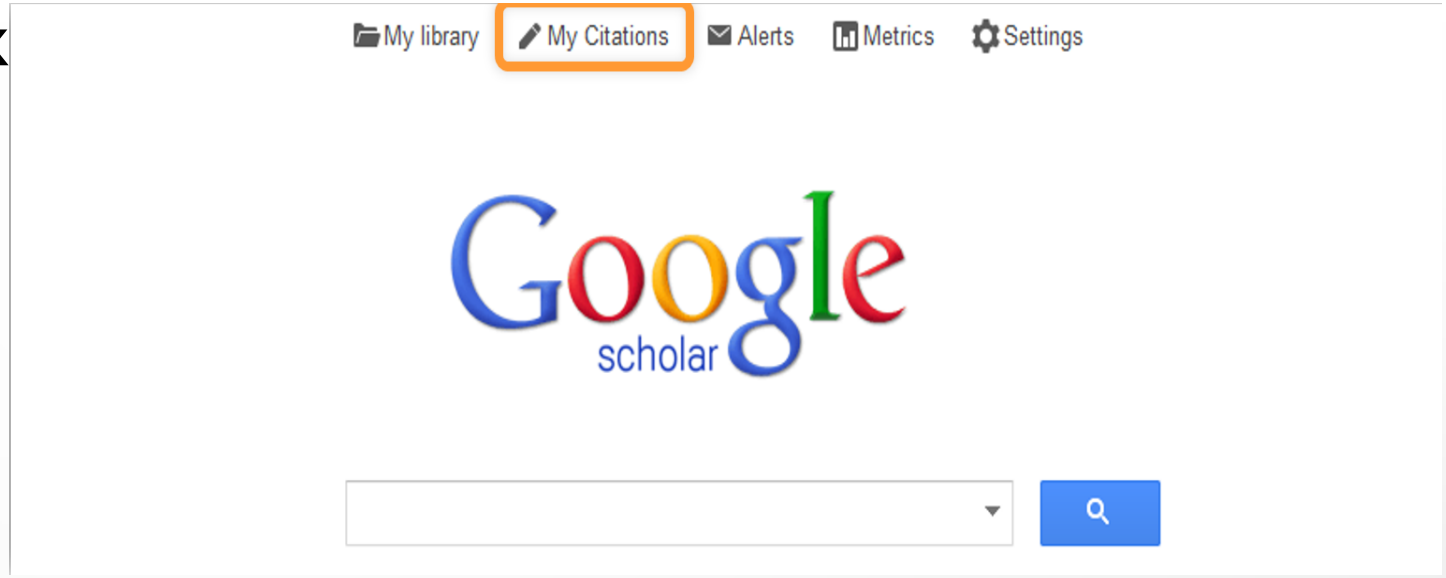


H-Index

SCOPUS™

- **Scopus** is a bibliographic database containing citations for academic journal articles. It covers nearly 22,000 titles from over 5,000 publishers.

- It is owned by **Elsevier** and available online.



H-Index

ResearchGate

RG ResearchGate

h index = 89

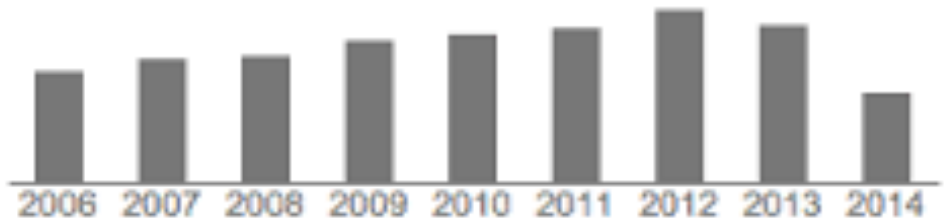
Author *h* index

View h-Graph

Of the 682 documents considered for the *h* index, 89 have been cited at least 89 times.

Note: The *h* index considers Scopus documents published after 1995.
About h-Graph

Citation indices	All	Since 2009
Citations	20537	7480
h-index	67	43
i10-index	132	91



Highest rated researchers on h-index

For the most highly cited scientists in the period 1983–2002, Hirsch identified the top 10 in the life sciences (in order of decreasing *h*):

Solomon H. Snyder, *h* = 191;
David Baltimore, *h* = 160;
Robert C. Gallo, *h* = 154;
Pierre Chambon, *h* = 153;
Bert Vogelstein, *h* = 151;
Salvador Moncada, *h* = 143;
Charles A. Dinarello, *h* = 138;
Tadamitsu Kishimoto, *h* = 134;
Ronald M. Evans, *h* = 127; and
Axel Ullrich, *h* = 120

LANDMARK UNIVERSITY
LMU
Breaking New Grounds

IWA
PUBLISHING

WILEY
Publishers Since 1807

ELSEVIER

Springer

nature

SAGE
Publishing

Taylor & Francis
Taylor & Francis Group

THOMSON
REUTERS

Science

Increased Webometric Ranking of the University!

The ranking is published by the Cybermetrics Lab, a research group of the Spanish National Research Council (CSIC) located in Madrid.

The Webometrics University Ranking is a ranking system based on university web presence, visibility and web access.This ranking system measures how strongly a university is present in the web by its own web domain, sub-pages, rich files, scholarly articles etc

RANKING WEB OF UNIVERSITIES

The aim of the Ranking is to improve the presence of the academic and research institutions on the Web and to promote the open access publication of scientific results

The way forward…….

A. For authors/colleagues:

- Colleagues should know their roles and keep within rules of engagement
- Ethics of authorship and publication should and must be rigidly followed to maintain integrity in research and publication
- Colleagues should align with global best practices with respect to deviation from single authorship to joint for qualitative multidisciplinary research

The way forward….cont'd

B. University Management:

- Focus should be on the **quality for impact** rather than **quantity** for promotion
- Management should endavour to get some of the aforementioned plagiarism software for faculty staff
- Facilities, equipment and tools for cutting-edge research that can be showcased in top journals should be provided by the University management
- The management, through the University library should register with some of these publishing houses such as Elsevier, Springer, Taylor and Francis, Wiley interscience etc for easy access to their publications

Increased and improved VISIBILITY!

Thank you

QUESTIONS & ANSWERS

Parting shots…

Action is the last resource of those who know not how to dream.

~Oscar Wilde

The roots of true achievement lie in the will to become the best that you can become."

-Harold Taylor

When deeds speak, words are nothing.

~ Kenyan Proverb

Ten Tips for Writing a Winning Proposal

It takes more than good ideas to get funding for your research. You need to explain your good ideas to a panel of reviewers in a way that will convince them that your work is important and that it will likely succeed. As you prepare your proposal, keep the following points in mind. Remember, many ideas fail to gain support not because they were not good ideas but because they were not clearly and convincingly presented.

1. **Write with your reviewers in mind.**
- Make sure your argument is easy to follow and clear.
- Do not waste the time of your reviewers; get right to the point.
- Include only essential information.
- Write in a clear, engaging style.

2. **Formulate clear research questions early in your proposal.**
- What do you want to know?
- Why is it important to gain the insights or information you are seeking?

3. **Be explicit about the relevance of your work to the Research Objectives.**
- Which areas of interest are you addressing?
-How will your proposal further the objectives of the existing work?
- Is you work relevant to a particular agency?
- How will your research help promote integrity
-sponsored research?

4. List and discuss prior research that has been done by you and others.

- Where does you proposed work stand in relation to other similar research?
- What conclusions has prior research reached?
- How will your work build on and advance research in your particular area?

5. Make sure your research methods are clearly described, understandable and realistic?

- Provide a clear outline of what you will do and when.
- Give sufficient detail so a reviewer can judge the feasibility of your work.
- Anticipate questions about your methods and try to answer them.

6. Make sure you research team has the expertise needed to carry out the work.

- Be explicit about who will do what work.
- Provide information that will allow others to assess the abilities of your research team.

7. Discuss limitations and possible problems and how you will deal with them.

- What problems might you encounter in your research?
- How will you deal with these problems?
- Are their important questions that you will not be able to answer during the proposed research?

8. Make sure your abstract clearly and precisely summaries you project.

- Briefly summarize your aims, methods, and anticipate conclusions.
- Take care to avoid technical language that makes your abstract difficult to understand.

9. Carefully check your application for grammar, style, and argument.

- Have you described your research in a logical order?
- Are your paragraphs clear and organized around a single point?
- Have you check carefully for careless errors, the misuse of words, and other common writing problems?

10. Have someone who is not familiar with you work read over your proposal for clarity and style.

- Can someone who is not familiar with you work follow your description of your proposal?
- Did they find your proposal interesting and easy to read?