Relativnost recenzijske prosudbe

Lacković, Zdravko

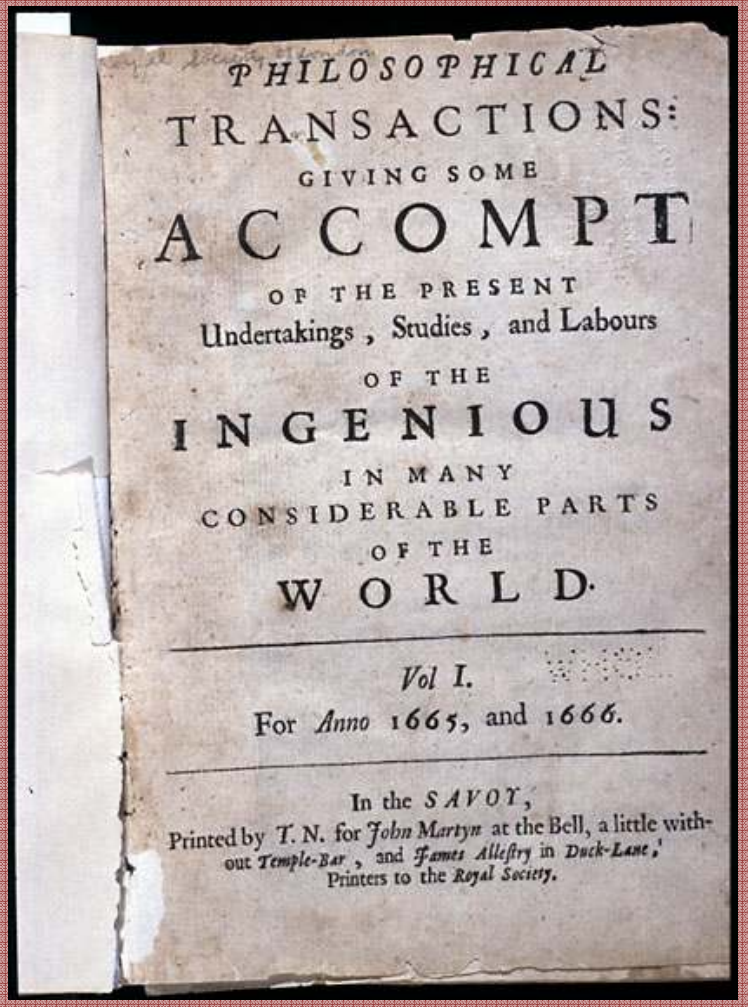
Conference presentation / Izlaganje na skupu

A Saudi cleric Sheikh Bandar al-Khaibari took it upon himself to challenge science. In a video that has went viral on the Internet, he attempted to dispel scientific fact, claiming that the **Earth doesn't rotate.**

HISTORY OF PEER REVIEW

Henry Oldenburg (c.1619-1677

Philosophical Transactions is the world's first scientific journal, launched March 1665 by Henry Oldenburg the Royal Society's first Secretary



PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD.

Vol I.
For *Anno* 1665, and 1666.

In the *SAVOY*,
Printed by *T. N.* for *John Martyn* at the Bell, a little without *Temple-Bar*, and *James Allestry* in *Duck-Lane*,
Printers to the *Royal Society*.

https://royalsociety.org/publishing350/history-philosophical-transactions/

„By the 1830s Philosophical Transactions was facing increased competition for the best scientific papers from commercial journals with a more rapid publication schedule, as well as from the proceedings and transactions of more specialised scientific societies. **The Royal Society responded by introducing more rigorous and systematic expert peer review" (1830? Or 1752?)**

Zdravko Lackovic

Relativnost recenzijske prosudbe
Relativity of Academic Peer Review

MICC
Medical Information Conference Croatia 2015 – Što se krije iza recenzije?
Medicinski fakultet Sveučilišta u Zagrebu

Professor Zdravko Lacković, MD, PhD

How to quantify an individual's scientific research output?

- **Total number of papers (N_p).** Advantage: measures productivity. Disadvantage: does not measure importance or impact of papers.
- **Total number of citations ($N_{c,tot}$).** Advantage: measures total impact. Disadvantage: hard to find and may be inflated by a small number of "big hits," which may not be representative of the individual if he or she is a coauthor with many others on those papers. In such cases, the relation in Eq. **1** will imply a very atypical value of a, >5. Another disadvantage is that $N_{c,tot}$ gives undue weight to highly cited review articles versus original research contributions.
- **Citations per paper** (i.e., ratio of $N_{c,tot}$ to N_p). Advantage: allows comparison of scientists of different ages. Disadvantage: hard to find, rewards low productivity, and penalizes high productivity.
- **Number of "significant papers,"** defined as the number of papers with >y citations (for example, y = 50). Advantage: eliminates the disadvantages of criteria *i, ii*, and *iii* and gives an idea of broad and sustained impact. Disadvantage: y is arbitrary and will randomly favor or disfavor individuals, and y needs to be adjusted for different levels of seniority.
- **Number of citations to each of the *q* most-cited papers** (for example, q = 5). Advantage: overcomes many of the disadvantages of the criteria above. Disadvantage: It is not a single number, making it more difficult to obtain and compare. Also, q is arbitrary and will randomly favor and disfavor individuals.

PNAS
www.pnas.org

J. E. Hirsch, An index to quantify an individual's scientific research output, PANS 16569–72,

The San Francisco Declaration on Research Assessment (DORA)

a declaration originating from the December 2012 meeting (conference) of the American Society for Cell Biology

Bruce A. "Impact Factor Distortions". Science 2013: 340 (6134) p. 787

The misuse of the journal impact factor is highly destructive:

1. it wastes the time of scientists by overloading highly cited journals with inappropriate submissions from researchers who are desperate to gain points from their evaluators.

2. Any evaluation system in which the mere number of a researcher's publications increases his or her score creates a strong disincentive to pursue risky and potentially groundbreaking work, because it takes years to create a new approach in a new experimental context, during which no publications should be expected. Such metrics further block innovation because they encourage scientists to work in areas of science that are already highly populated, as it is only in these fields that large numbers of scientists can be expected to reference one's work, no matter how outstanding.

nature International weekly journal of science

„Impact factors don't tell us as much as some people think about the quality of the science that journals are publishing." ***(Nature: Editorial)***

Nature's latest impact factor is 32.2…

…. we have analysed the citations of individual papers in *Nature* and found that **89% of last year's figure was generated by just 25% of our papers**.

… The most cited *Nature* paper from 2002–03 was the mouse genome, published in December 2002.

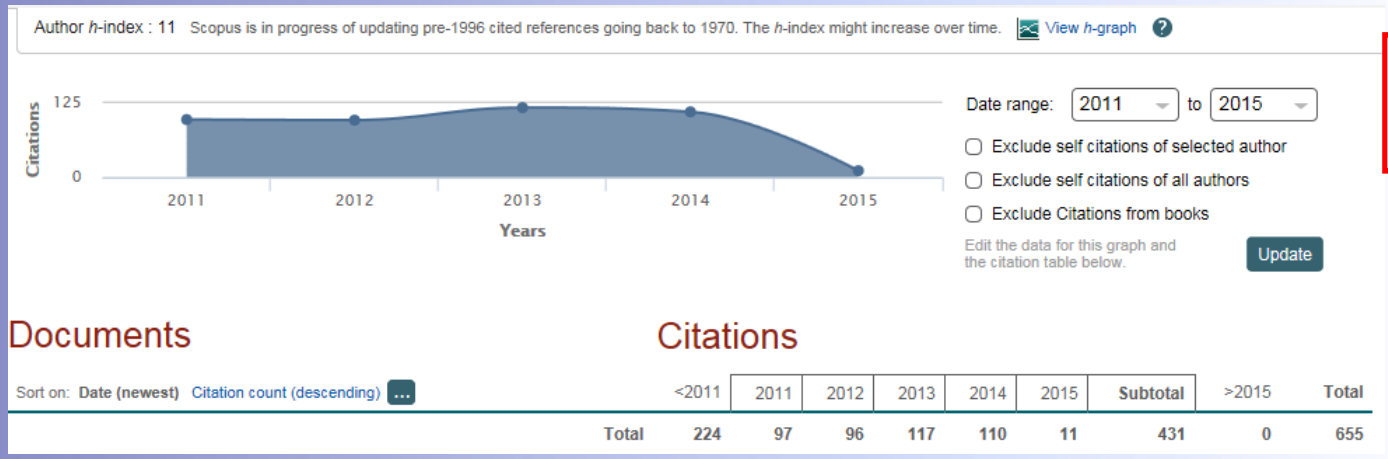
Only 50 out of the roughly 1,800 citable items published in those two years received more than 100 citations in 2004. **The great majority of our papers received fewer than 20 citations.**

None of this would really matter very much, were it not for the unhealthy reliance on impact factors by administrators and researchers' employers worldwide to assess the scientific quality of nations and institutions, and often even to judge individuals

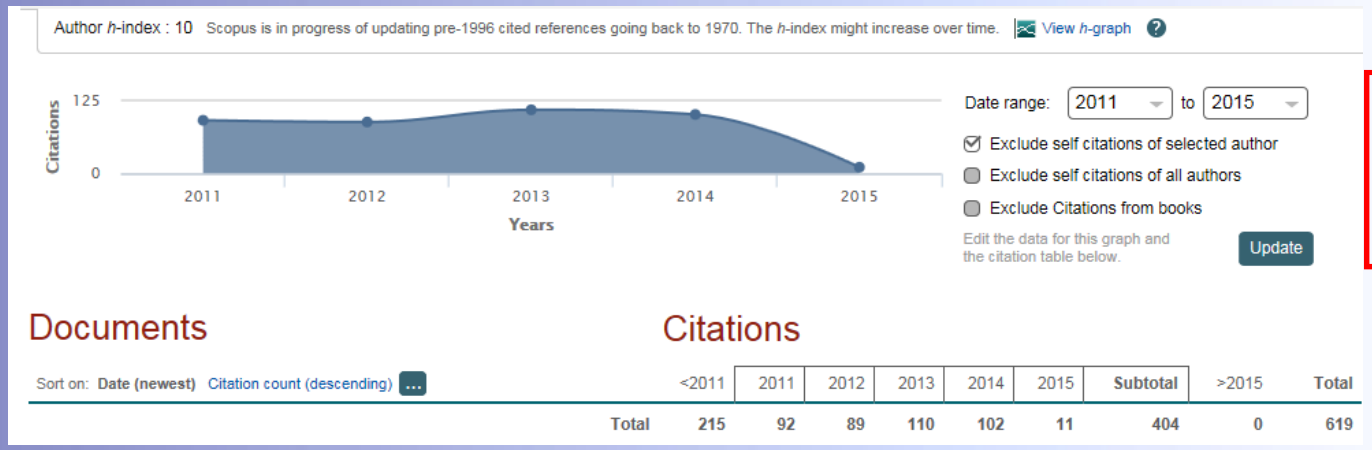
Editorial: Not-so-deep impact; Research assessment rests too heavily on the inflated status of the impact factor. Nature 435, 1003-1004 (23 June 2005) |doi:10.1038/4351003b; Published online 22 June 2005

LIMITATION OF CITATIONS: Impact of autocitations

(real exmple from Zagreb Medical School, 2015), data from Scopus

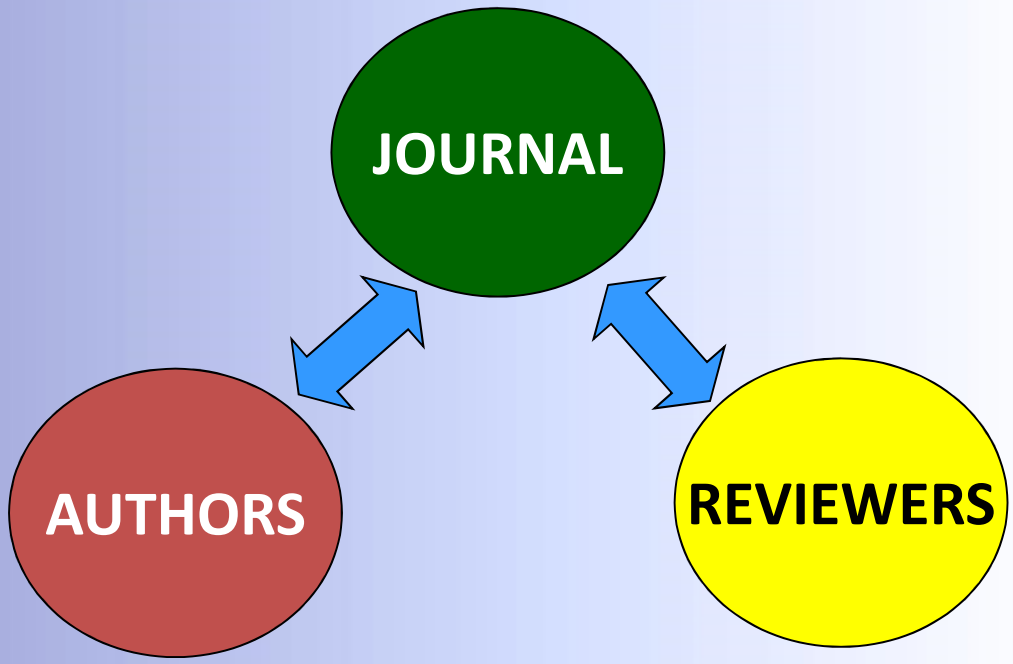


Total citations: 655
H index: 11



Without selfcitations: 619
H index: 10

Scientific paper is a common effort of:



Peer review is a central concept for most academic publishing; other scholars in a field must find a work sufficiently high in quality for it to merit publication. The process also guards against plagiarism. The origins of routine peer review for submissions dates to 1752 when the Royal Society of London when it took over official responsibility for the *Philosophical Transactions.*

Reviewer must be

1. Competent
2. independent

According to ORPHEUS Standards

7 ASSESSMENT
Basic standard:

The assessment committee will consist of established and active scientists who are external to and without connection to the milieu where the PhD was performed, and without any conflict of interest

Lackovic 2014

http://ishareimage.com/peer-review.asp

Criticism of peer review

Richard Horton, editor of The Lancet, said:

The mistake, of course, is to have thought that peer review was any more than just a crude means of discovering the acceptability—not the validity—of a new finding. Editors and scientists alike insist on the pivotal importance of peer review. We portray peer review to the public as a quasi-sacred process that helps to make science our most objective truth teller. But we know that the system of peer review is biased, unjust, unaccountable, incomplete, easily fixed, often insulting, usually ignorant, occasionally foolish, and frequently wrong.

Horton, Richard (2000). "Genetically modified food: consternation, confusion, and crack-up". MJA 172 (4): 148–9. PMID 10772580.

PEER REWIEW LIMITATIONS AND MISTAKES

Two similar experiments

1. BMJ Editor Fiona Godlee and two colleagues took a paper about to be published in their journal (BMJ) and introduced eight deliberate errors. Then they sent the paper to 420 reviewers. The median number of errors detected by the 221 respondents was two. Nobody found more than five, and 16 percent didn't find any errors at all.

2. 1998, when Annals of Emergency Medicine cleverly put together a fictitious manuscript riddled with errors and distributed it to 203 reviewers for evaluation. The errors were divided into major and minor categories. The major errors included such blunders as faulty or plainly unscientific methods, as well as blatantly erroneous data analyses. Minor errors consisted of failure to observe or report negative effects on study participants, incorrect statistical analysis, and fabricated references — just to mention a few. According to the authors, the majority of peer reviewers failed to identify two-thirds of the major errors in the manuscript. Forty-one percent of reviewers indicated that the manuscript should be accepted for publication.

PEER REWIEW LIMITATIONS AND MISTAKES

… I created a manuscript that claimed something extraordinary – that I'd discovered a species **of bacteria that uses arsenic in its DNA instead of phosphorus**. But I made the science so egregiously bad that no competent peer reviewer would accept it. The approach was deeply flawed – there were poor or absent controls in every figure. I used ludicrously elaborate experiments where simple ones would have done. And I failed to include a simple, obvious experiment that would have definitively shown that arsenic was really in the bacteria's DNA. I then submitted the paper to *Science*, punching up the impact the work would have on our understanding of extraterrestrials and the origins of life on Earth in the cover letter. And what do you know? They accepted it!

I confess, I wrote the Arsenic DNA paper to expose flaws in peer-review at subscription based journals. By Michael Eisen | Published: October 3, 2013
- See more at: http://www.michaeleisen.org/blog/?p=1439#sthash.FqFJ24FT.dpuf

- **PRIVATE BLOG – reliability?**

TheScientist
EXPLORING LIFE, INSPIRING INNOVATION

The Top 10 Retractions of 2014

A look at this year's most memorable retractions
By Adam Marcus and Ivan Oransky | December 23, 2014

MOST TRAGIC: STAP stem cell paper retractions from Nature. Readers detected significant problems with the research, and Haruko Obokata, who led the studies, was ultimately unable to replicate the findings. One co-author Yoshiki Sasai, was not responsible for any misconduct, but committed suicide following the scandal.


Khalid Zaman

MOST ORIGINAL: Sixteen papers are being retracted across three Elsevier journals after the publisher discovered that one of the authors, Khalid Zaman, orchestrated fake peer reviews by submitting false contact information for his suggested reviewers (all with non-institutional addresses).

IS IT UNUSUAL? In July, the publisher SAGE **retracted 60 articles** from the Journal of Vibration and Control after an investigation revealed a "**peer review and citation ring**" in which at least one professor in Taiwan, Peter Chen, allegedly assumed false identities to promote his own work.

STRIKE BACK: *Circulation* retracted a 2012 study by a group of Harvard heart specialists over concerns of corrupt data, and the university is investigating. The group was led by P. Anversa, a leading cardiologist, who along with a colleague filed suit against the institution on the grounds that the inquiry was damaging to his career...

nature International weekly journal of science

The Cost of Irreproducible Research

Irreproducible biology research costs put at $28 billion per year

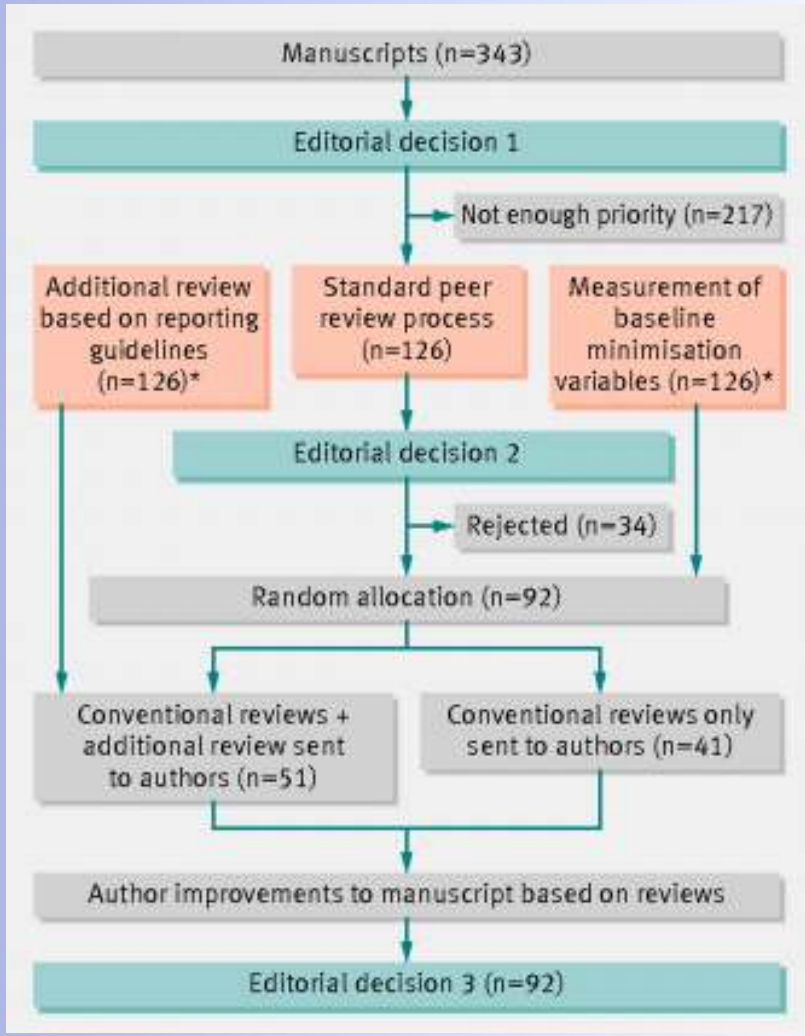
Study calculates cost of flawed biomedical research in the United States.

Monya Baker, 09 June 2015

Factors (beside fraud) includ: e

- poor training of researchers in experimental design;
- increased emphasis on making provocative statements rather than presenting technical details;
- and publications that do not report basic elements of experimental design. Crucial experimental design elements that are all **too frequently ignored include blinding, randomization, replication, sample-size calculation and the effect of sex differences.**
- And some scientists reputedly use a 'secret sauce' to make their experiments work — and withhold details from publication or describe them only vaguely to retain a competitive edge.
- What hope is there that other scientists will be able to build on such work to further biomedical progress?

Fig 1 Study design and manuscript flow. *Additional reviews and measurement of minimisation variables were undertaken during the standard peer review process, but this information was concealed until the later editorial stages.



E Cobo et al. BMJ 2011;343:bmj.d6783

Postpublication reviews

open peer commentary; journals using this process solicit and publish non-anonymous commentaries on the "target paper" together with the paper, and with original authors' reply as a matter of course.

The introduction of the "**epub ahead of print**" practice in many journals has made possible the simultaneous publication of unsolicited letters to the editor together with the original paper in the print issue.