

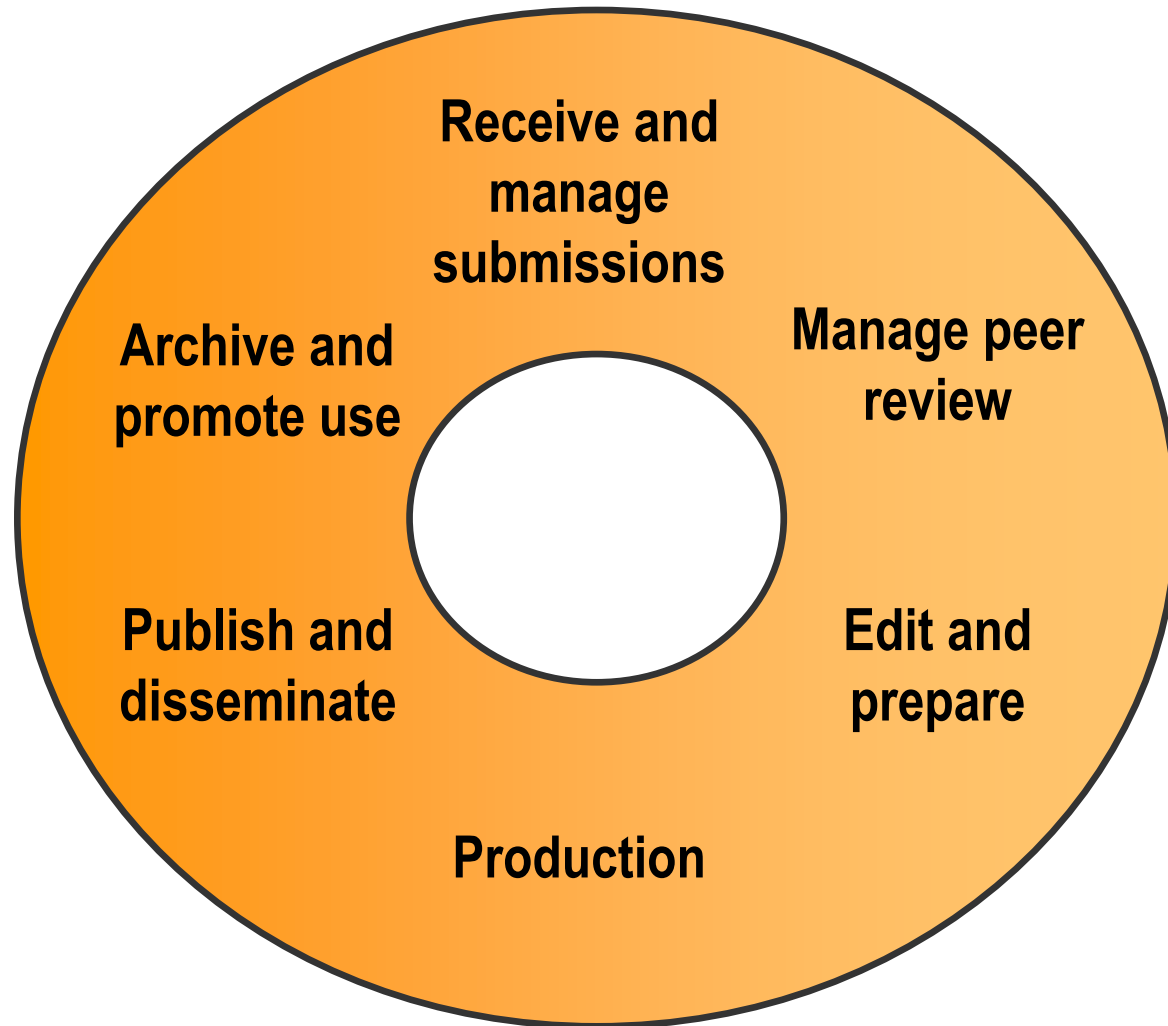
The Publishing Cycle
Closing the Ethical Loop
October 2011, University of Maryland

Gert-Jan Geraeds, Executive Publisher

G.Geraeds@Elsevier.com

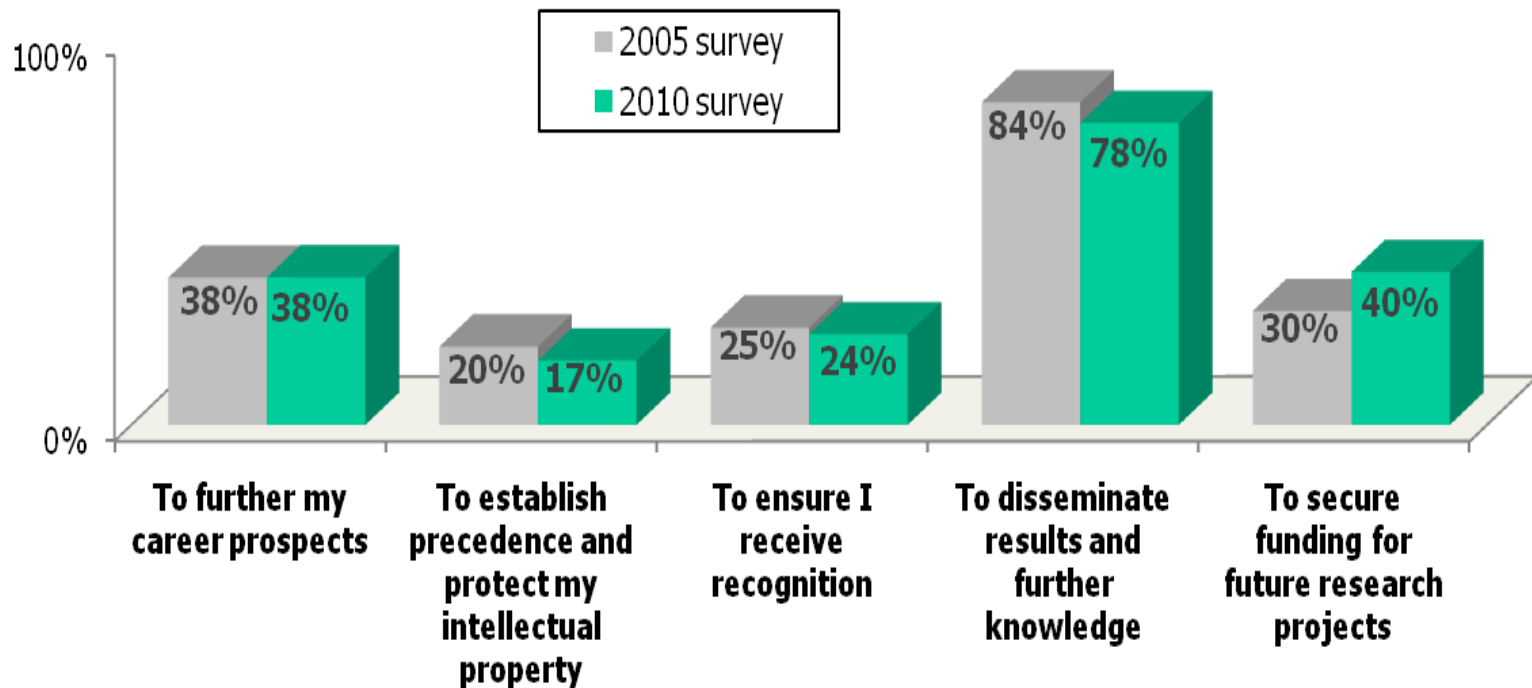


The Journal Publishing Cycle



Researchers' Reasons for Publishing

Researchers: which publishing objectives are most important to you?

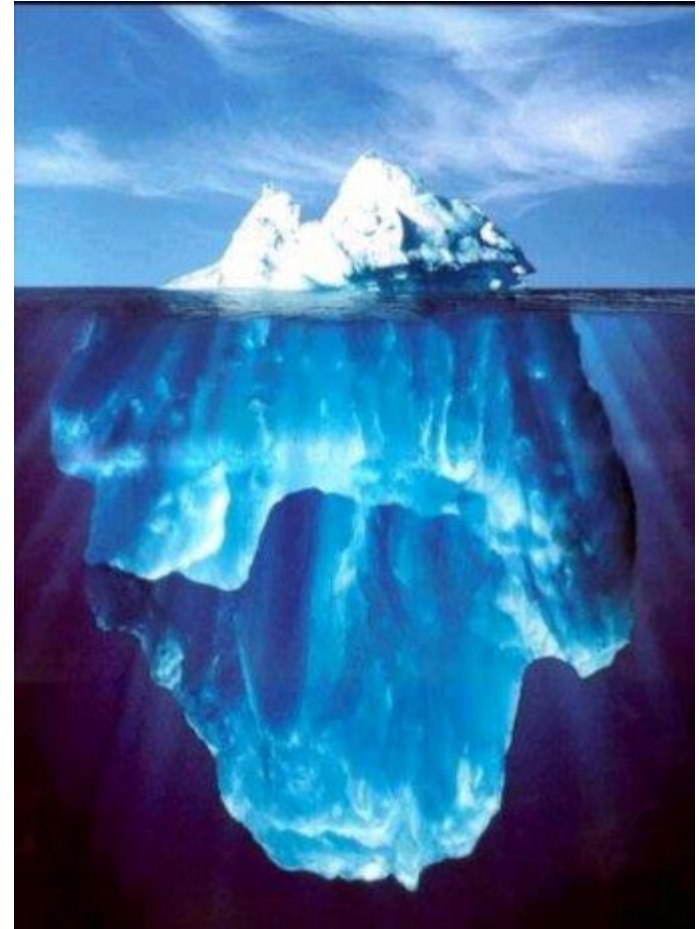
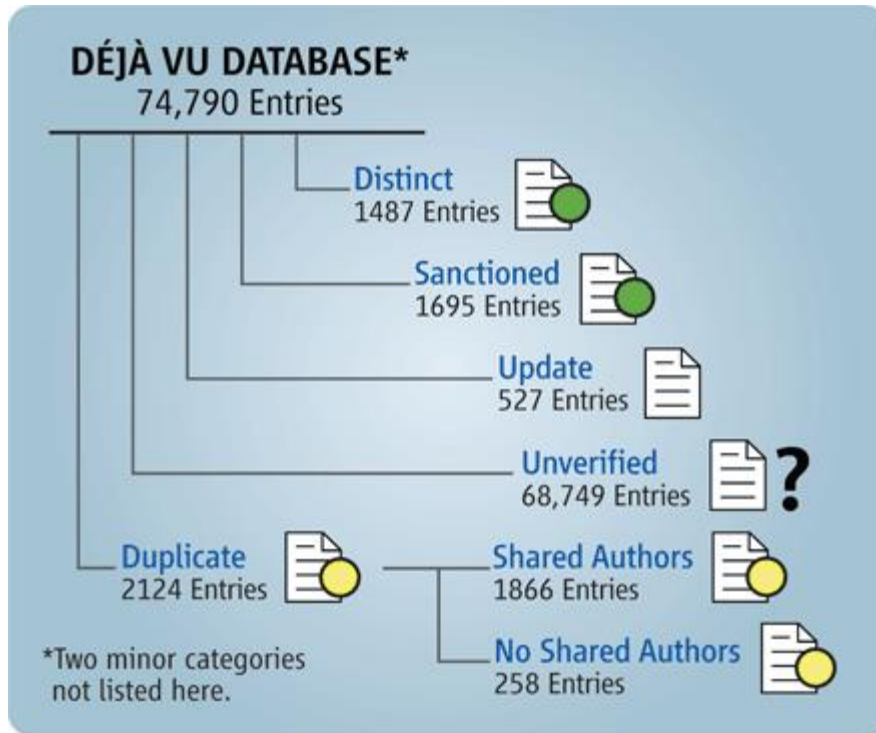


Sources: NOP/Elsevier surveys 2005 and 2010

Publish *and* Perish, if you break the ethical rules

- International scientific ethics have evolved over centuries and are ***commonly held throughout the world.***
- Scientific ethics are not considered to have national variants or characteristics – there is a ***single ethical standard*** for science.
- ***Ethics problems*** with scientific articles are ***on the rise globally.***

How big is the problem?



Up to 200,000 of 17 million articles in Medline database may be duplicates, or plagiarized
Errami & Garner. *Nature* 451, 397-399 (2008)

Authorship

- **Author:** someone who has made substantive intellectual contributions to a published study
- **Authors should**
 - make substantial contributions to conception and design, acquisition of data or analysis and interpretation of data
 - draft the article or revise it critically for intellectual content
 - have final approval of the version to be published

Definition from: <http://www.icmje.org>



Authors' Duties

- Reporting Standards
- Data Access and Retention
- Originality
- Multiple or Concurrent Publication
- Acknowledgement of Sources
- Hazards and Human or Animal Subjects
- Disclosure and Conflicts of Interest
- Fundamental Errors in Published Works

Scientific Integrity and Trust

Reason for Retraction:

During the second revision of the manuscript, the authors modified Figure 1 (changing the label from "Israel" to "Historical Palestine"). The authors did not inform the editors or the publisher of this change in their manuscript. As such, **the authors have not lived up to the standards of trust and integrity that form the foundation of the peer-review process.** The Editors-in-Chief take a strong view on this matter and, hence, the retraction of the article from publication in Agricultural Water Management.



RETRACTED: Matching pursuit-based approach for

N. Ruiz-Reyes^a, P. Vera-Candeas^a, J. Curpián-Alonso^a, J.C. Cuevas

Available online 24 August 2005.

This article has been retracted at the request of the Editor-in-Chief and Publisher
<http://www.elsevier.com/locate/withdrawalpolicy>.

Reason: This article is virtually identical to the previously published article "A new algorithm for SNR improvement in ultrasonic NDT", *Independent Nondestructive International*, volume 38 (2005) 453 – 458 authored by N. Ruiz-Reyes, P. Vera-Candeas, J. Curpián-Alonso, J.C. Cuevas-Martínez and J.C. Cuevas-Martínez.

The article of which the authors committed plagiarism will not be removed from ScienceDirect. Everybody who downloads it will see the reason of retraction.

the echoes issuing from the flaws to be detected. Therefore, it cannot be cancelled by classical time averaging or matched band-pass filtering techniques.

Many signal processing techniques have been utilized for signal-to-noise ratio (SNR) improvement in ultrasonic NDT of highly scattering materials. The most popular one is the split spectrum processing (SSP) [1–3], because it makes possible real-time ultrasonic test for industrial applications, providing quite good results. Alternatively to SSP, wavelet transform (WT) based denoising/detection methods have been proposed during recent years [4–8], yielding usually to higher improvements of SNR at the expense of an increase in complexity. Adaptive time-frequency analysis by basis pursuit (BP) [9,10] is a recent technique for decomposing a signal into an optimal superposition of elements in an over-complete waveform dictionary. This technique and some other related techniques have been successfully applied to denoising ultrasonic signals contaminated with grain noise in highly scattering materials [11,12], as an alternative to the WT technique, the computational cost of the BP algorithm being the main drawback.

In this paper, we propose a novel matching pursuit-based signal processing method for improving SNR in ultrasonic NDT of highly scattering materials, such as steel and composites. Matching pursuit is used instead of BP to reduce the complexity. Despite its iterative nature, the method is fast enough to be real-time implemented. The performance of the proposed method has been evaluated using both computer simulation and experimental results, even when the input SNR (SNR_{in}) is lower than 0dB (the level of echoes from the microstructures is above the level of the echoes).

2. Matching pursuit

Matching pursuit was introduced by Mallat and Zhang [13]. Let us suppose an approximation of the ultrasonic backscattered signals $s[n]$ as a linear expansion in terms of functions $g_i[n]$ chosen from an over-complete dictionary. Let H be a Hilbert

space. We define the over-complete dictionary as a family $D = \{g_i; i = 0, 1, \dots, L\}$ of vectors in H , such as $\|g_i\| = 1$.

The problem of choosing functions $g_i[n]$ that best approximate the analysed signal $s[n]$ is computationally very complex. Matching pursuit is an iterative algorithm that offers sub-optimal solutions for decomposing signals in terms of expansion functions chosen from a dictionary, where l^1 norm is used as the approximation metric because of its mathematical convenience. When a well-designed dictionary is used in matching pursuit, the non-linear nature of the algorithm leads to compact adaptive signal models.

In each step of the iterative procedure, vector $g_i[n]$ which gives the largest inner product with the analysed signal is chosen. The contribution of this vector is then subtracted from the signal and the process is repeated on the residual. At the m th iteration the residue is

$$r^m[n] = \begin{cases} s[n] & m = 0, \\ r^{m-1}[n] + \alpha_{i(m)} g_{i(m)}[n], & m \neq 0, \end{cases} \quad (1)$$

where $\alpha_{i(m)}$ is the weight associated to optimum atom $g_{i(m)}[n]$ at the m th iteration.

The weight α_i^m associated to each atom $g_i[n] \in D$ at the m th iteration is introduced to compute all the inner products with the residual $r^m[n]$:

$$\alpha_i^m = \frac{\langle r^m[n], g_i[n] \rangle}{\langle g_i[n], g_i[n] \rangle} = \frac{\langle r^m[n], g_i[n] \rangle}{\|g_i[n]\|^2} = \langle r^m[n], g_i[n] \rangle. \quad (2)$$

The optimum atom $g_{i(m)}[n]$ (and its weight $\alpha_{i(m)}$) at the m th iteration are obtained as follows:

$$g_{i(m)}[n] = \underset{g_i[n] \in D}{\operatorname{argmin}} \|\langle r^m[n], g_i[n] \rangle\|^2 = \underset{g_i[n] \in D}{\operatorname{argmax}} |\alpha_i^m|. \quad (3)$$

The computation of correlations $\langle r^m[n], g_i[n] \rangle$ for all vectors $g_i[n]$ at each iteration implies a high computational effort, which can be substantially reduced using an updating procedure derived from Eq. (1). The correlation updating procedure [13] is performed as follows:

$$\langle r^{m+1}[n], g_i[n] \rangle = \langle r^m[n], g_i[n] \rangle - \alpha_{i(m)} \langle g_{i(m)}[n], g_i[n] \rangle. \quad (4)$$



Peer Review

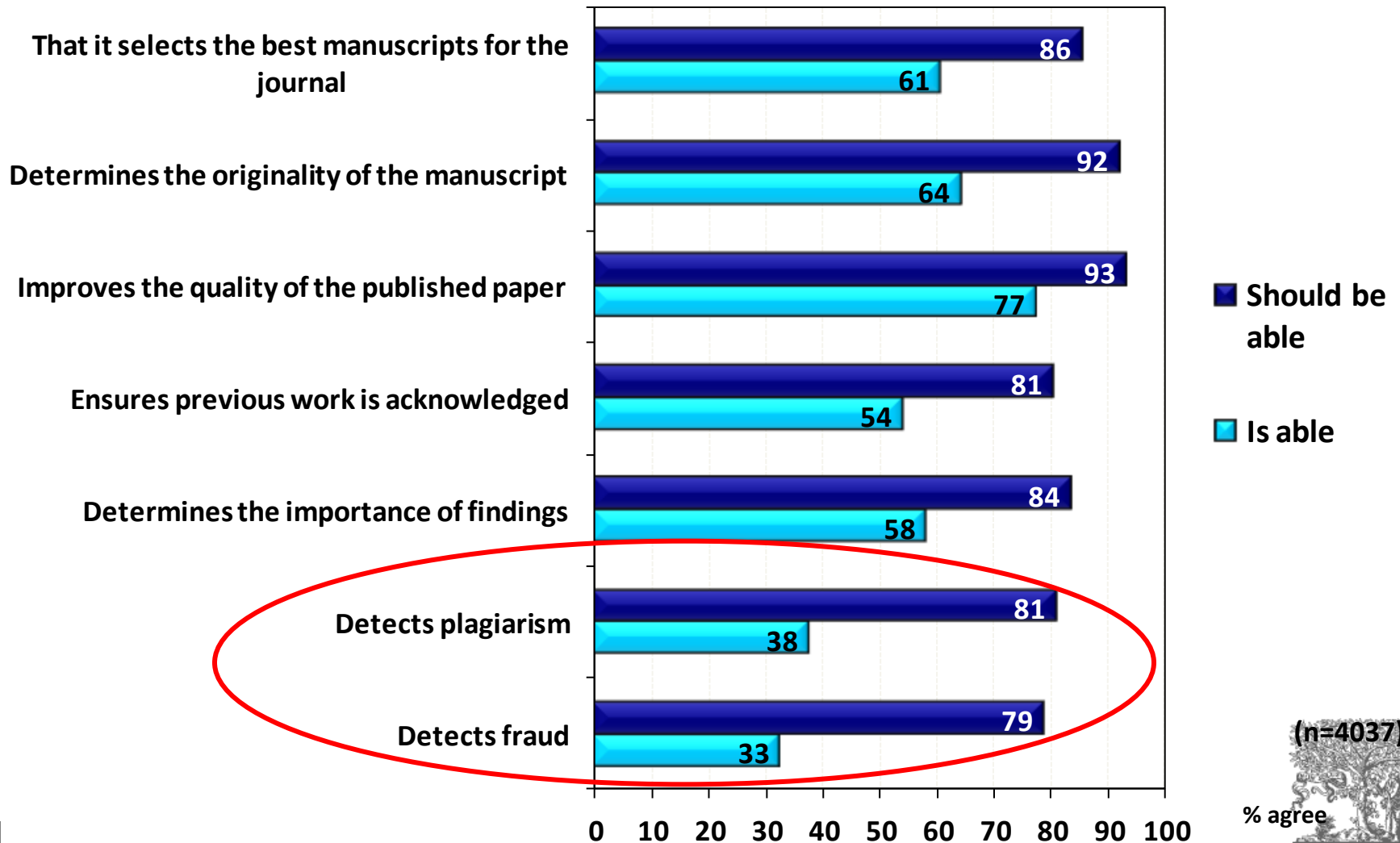
The essential filter used to separate science from speculation and to determine scientific quality

- **Peer review helps to determine the validity, significance and originality of research**
- **Helps to improve the quality of papers**
- **Publication in peer-reviewed journals protects the author's work and claim to authorship**
- **Publishers have ensured the sustainability of journals and the peer-review system for over 300 years**



Peer Review is not a Panacea

Questions: To what extent do you agree or disagree that the following objectives should be the purpose of peer review
To what extent do you agree or disagree that peer review is currently able to do the following?



Reviewers' Duties

- Contribution to Editorial Decisions
- Promptness
- Confidentiality
- Objectivity
- Acknowledgement of Sources
- Disclosure and Conflict of Interest

Peer Review Pilots and Initiatives (1)

1. Re-using reviewer reports

- Reviewer reports for out-of-scope submissions shared in journal cascading model.
- Journal consortia re-using reviewer reports

2. Increase efficiency or speed

- Publish review times per reviewer (Journal of Public Economics)
- Authors to choose for fast & light review, versus slow & thorough.
- Authors bypass 2nd review, opting to publish revised paper without 2nd review (BMC Journal of Biology)

3. Increase transparency of peer review

- Show review reports online (EMBO)
- Reviewers have the option of revealing their identity (PlosONE)
- EES: reviewer seeing each other's reports
- EES: author seeing editor's comments



Peer Review Pilots and Initiatives (2)

4. Post-publication commenting

- Nature / Open Peer Review trial (2006)
- Cell Press

5. Increase chances that reviewers accept invitation

- Provide monetary incentive (Journal of Public Economics)
- Empower reviewers: reviewer-finds-article pilot (Chem. Physical Letters)

6. Reward or recognition

- Publish list of top reviewers in journals
- Provide best-reviewer certificates



Editors' Duties

- Publication Decision
- Fair Play
- Confidentiality
- Disclosure and Conflict of Interest
- Vigilance over Published Record
- Involvement and Cooperation in Investigations

Editorial Guidance or Impact Factor Engineering?

EDITOR'S COMMENTS

“In general terms, I agree with the reviewers’ comments.

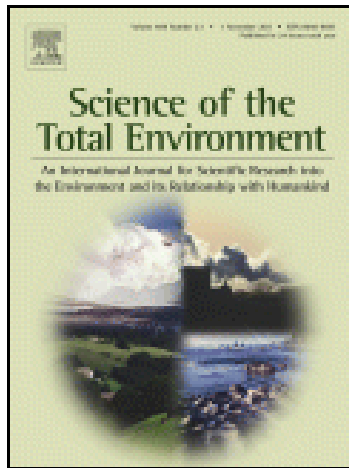
However, why did you submit to our journal?

It has published various papers on studies in the same line as yours. In the references I have not found one single paper published in our journal, while others were cited various times.

In the minor revision, **I suggest you check for references published in our journal and add these.** This is always a good indicator that a manuscript fits well in a certain journal.”



Editorial Guidance or Review System Overload?



(Desk) Reject

Referral

New Review

Reviewers' Workload

Aims & Scope
Article Type
Quality

Publishers' Services

Registration

The timestamp to officially note who submitted scientific results first

Certification

Perform peer-review to ensure the validity and integrity of submissions

Dissemination

Provide a medium for discoveries and findings to be shared

Preservation

Preserving the minutes and record of science for posterity

Publishers coordinate the exchange of ideas between authors, editors, reviewers, and the wider STM audience of researchers, scientists, health professionals, students, and patients.



ELSEVIER

Publisher's Duties

- Support Editors, Reviewers and Authors in Performing Ethical Duties
- Support Editors in the Review of Complaints
- Develop Codes of Practice and Implement Industry Standards for Best Practice
- Provide Specialised Legal Review and Counsel

Thank You !

Gert-Jan Geraeds, Executive Publisher

G.Geraeds@Elsevier.com

