



# **Research Integrity in the spotlight**

## **A Publisher's Perspective**

27 August 2021  
Catriona Fennell, Director Publishing Services



# Agenda

- Responsibilities of the publisher
- From misconduct to “sloppy science”
- Education & prevention
- Detection
- Investigation & resolution
- Reproducibility
- Celebrating diversity
- Questions/comments



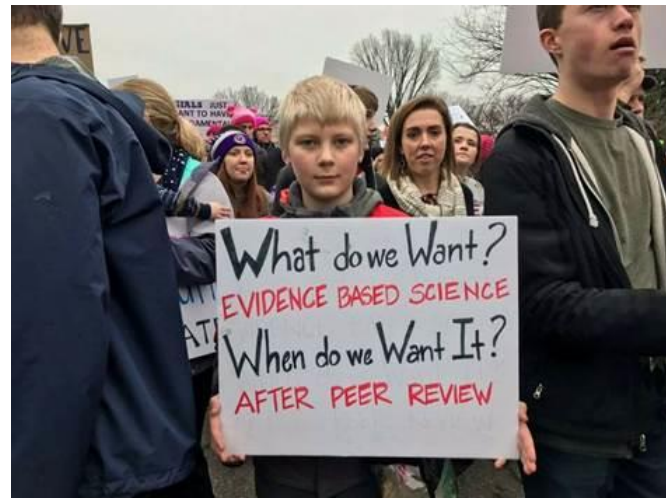
# The Elsevier context

- We publish 2700 journals, 600 of which are society-owned
- We publish 600,000 new papers per year
- ScienceDirect contains 16 million articles/chapters, dating back to 1826
- 8,000 Editors in Chief work closely with:
- 250 Publishers

# Responsibilities of the publishing house

It is fundamental to the value Elsevier offers the community that we...

- Safeguard the quality, integrity & reliability of the content we publish
- Promote highest ethical & professional standards
- Educate authors, particularly about the many 'grey areas'
- Provide editors with best processes, tools, advice & support
- Stand with editors if their decisions are challenged



Credit: L.D. May

# Elsevier Trust in Research survey 2019 (n=3133)

86% of researchers doubt the quality of the research outputs they encounter



**“At least some research outputs are not trustworthy”**

## Why are research outputs untrustworthy?

*Conclusions and interpretation not supported by evidence*

*Flaws in the methodology*

*Exaggerated findings*

*Outputs have not undergone peer review e.g. preprints*

**Manipulated images**

*Data/code not available to enable validation*

**Conflicts of interest not disclosed (potential bias)**

## How do researchers compensate for lack of confidence in research outputs? Top 3

**1**

Check supplementary material or data carefully

**2**

Only read or access content linked to a peer reviewed journal

**3**

Seek corroboration from other trusted sources (e.g. see if research is cited in a known journal)

# How deep is the iceberg?

Falsification

Fabrication

Plagiarism

Peer-review manipulation

Questionable

Research

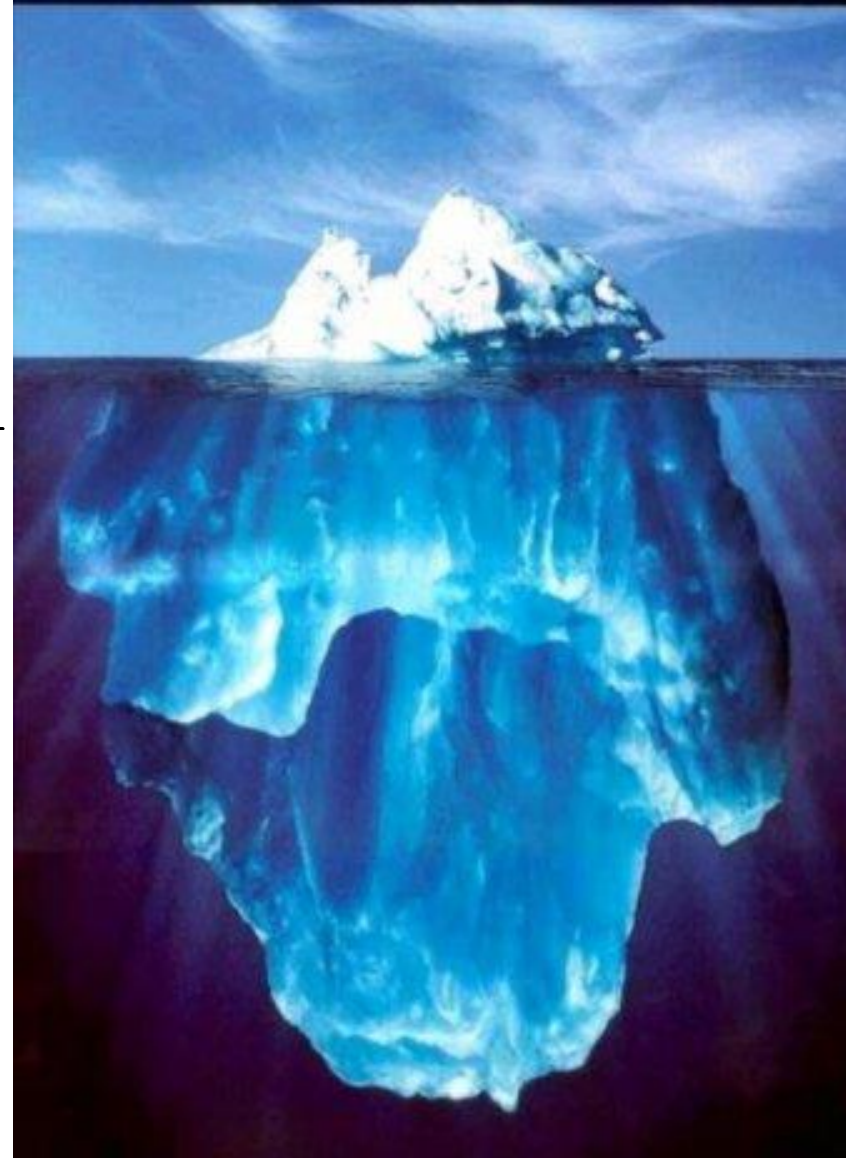
Practice

(Ir)responsible

Conduct of

Research

Lack of reproducibility



# Agenda

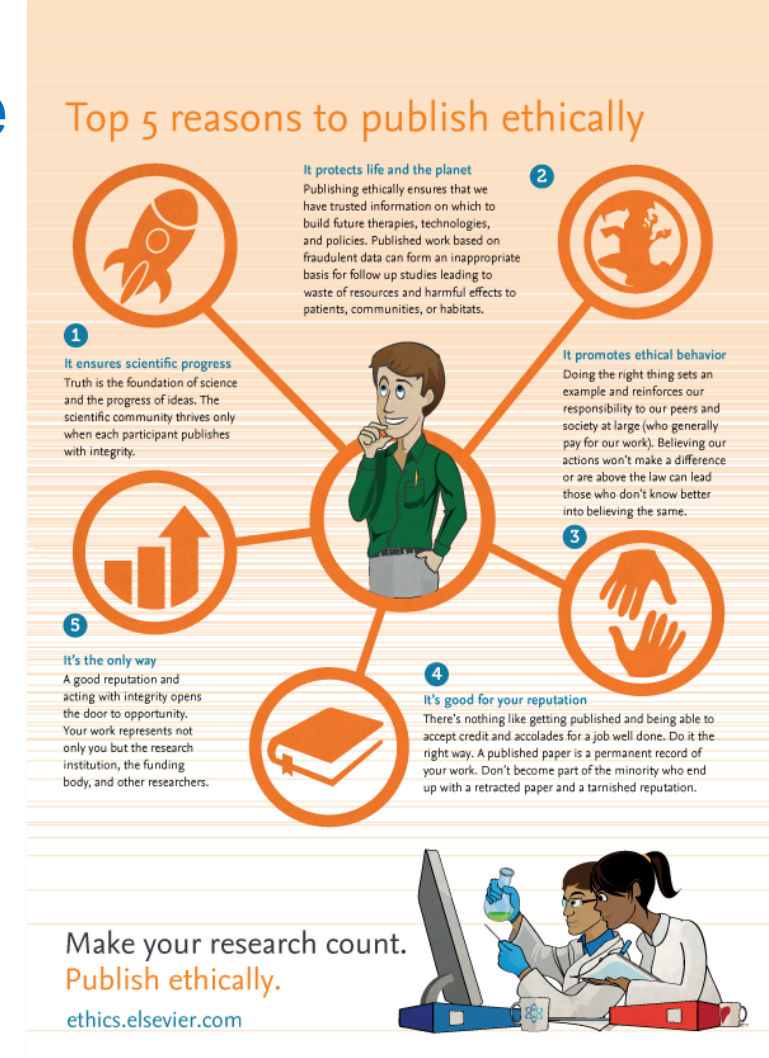
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# Educating authors on the ethical landscape

- Online education program
- Teaching the “ground rules”: along with the credit of authorship comes accountability
- Educating on the many grey areas
- Supporting authors to identify credible journals
- Factsheets, FAQ
- 500+ workshops annually



“Predatory” vs trustworthy journals: What do they mean for the integrity of science?

An Elsevier leader answers questions about the practices of predatory journals and the role of trustworthy publishers



# Prevention: Clear, 'gold standard' ethical requirements

- Ethical policies are prominent in all 'Guide for Authors'
- Mandatory ethics statement for all submissions in editorial systems]
- Declaration of interest: increasingly mandatory
- Patient consent & ethics approval for medical content

## To finalize your submission:

1. Click **View Submission** to review the PDF before you approve your submission.
2. Integrity is vital to the trustworthiness of science. Please make sure that your manuscript adheres to the guidelines for [Ethics in Publishing](#).
3. Review Elsevier's [Terms & Conditions](#).
4. Once you have reviewed the PDF, Ethics in Publishing guidelines, and Elsevier's Terms & Conditions, check the box to consent to these terms and complete your submission.

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- Use **Edit Submission** to change the meta-data, and to upload or remove files to your submission.
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## If you have additional questions or need help completing your submission:

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Page: 1 of 1 (1 total submissions)

Display  results per page.

Action ▲▼	Title ▲▼	Date Submission Began ▲▼	Status Date ▲▼	Current Status ▲▼	Accept Ethics in Publishing and Elsevier's Terms & Conditions?
<a href="#">Action Links</a>	asdasd	Mar 09, 2021	Apr 16, 2021	Needs Approval	<input type="checkbox"/> I accept

# Transparency on competing interests

- Mandatory statement for Elsevier journals, even if nothing to declare
- Ensuring editors, reviewers & readers can put the research in context of any potential biases
- Many grey areas for authors
- Elsevier has developed a\_ to guide authors step-by-step through the process of preparing detailed statements
- Aligned with ICMJE best practice

## Declaring your interests is required.

To help our readers make their own judgments of potential bias, the corresponding author must disclose any potential competing or non-financial interests on behalf of all authors of the manuscript.

### What should you disclose?



#### Research Support

Identify any financial or non-financial assistance provided by a third party with a vested interest in the reported work. You do not need to declare an author's academic institution, or public funding sources from charitable foundations or government agencies.



#### Related Work

Declare any relationship — *within the last 3 years* — between an author and a third party that may have an interest in the subject matter beyond the manuscript. Examples include advisory positions, consulting fees, equity & stock ownership, and non-financial support.



#### Intellectual Property

Disclose any patents or copyrights an author may have that are relevant to the work in the manuscript.



#### Other Activities

Share anything else that you and your co-authors believe may merit disclosure.

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# Contributor Roles Taxonomy: CRediT

- Simple, open standard of 14 defined author contributions types, suitable for all subject areas
  - Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Writing – original draft; Writing – review & editing
- Developed collaboratively by researchers, funders, publishers together with standards organisations NISO & CASRAI

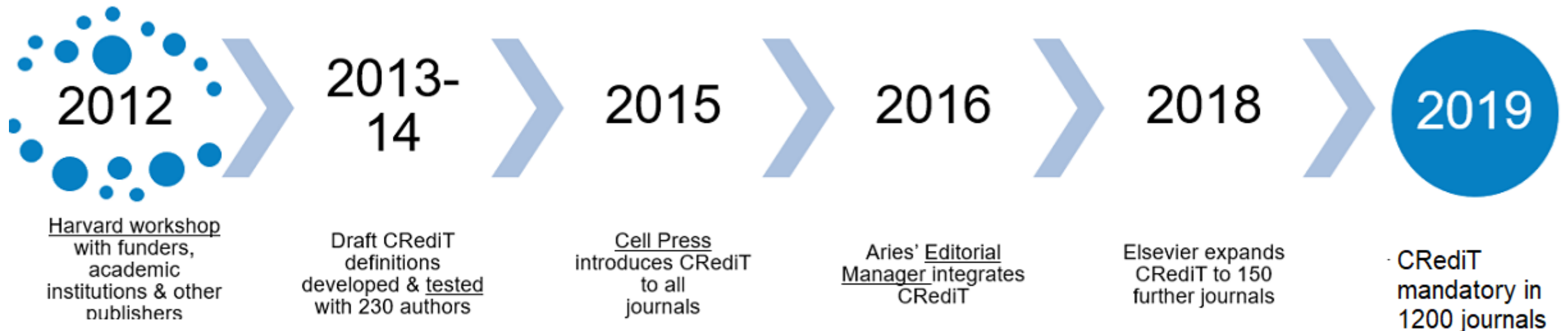
## CRediT authorship contribution statement

**Silvana Petzel-Witt:** Conceptualization, Methodology, Investigation, Project administration, Data curation, Validation, Writing - original draft. **Sylvia I. Meier:** Formal analysis, Writing - review & editing. **Manfred Schubert-Zsilavecz:** Conceptualization, Supervision, Writing - review & editing. **Stefan W. Toennes:** Conceptualization, Methodology, Formal analysis, Resources, Writing - original draft.

Refs: IWCSA Report (2012). Harvard University and the Wellcome Trust; Allen et al. (2014) *Nature* 508; Brand et al (2015) *Learned Publishing*, 28.

# Giving CRedit where it's due

- CRedit is **fairer, richer & more transparent** than traditional author lists
- More **visibility & recognition** for contributions in **methodology, statistical analysis**
- Helps to **reduce author disputes**; supports adherence to authorship policies
- Enables **funders** to identify those responsible for specific developments



# Prevention of peer-review manipulation

- Authors/agencies manipulate the peer review system to review their own papers
- Studies indicate author-suggested reviewers tend to be positively bias
- Reviewer Recommender validates reviewer emails against Scopus & checks for COIs; editors always use at least one independent reviewer



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- Investigation & resolution
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# Detection of duplication/plagiarism: Similarity Check

- Consists of database of published content and similarity-detecting software from Turnitin
- Unique database: 100 million articles from 200,000+ journals and books from thousands of publishers
- Expert interpretation still essential: Similarity Check shows similarity but not context or intent
- Shortcomings: risk of false positives (e.g. preprints) & false negatives (e.g. disguised plagiarism)

Polystyrene-supported  $\text{GaCl}_3$ : A new, highly efficient and recyclable heterogeneous Lewis acid catalyst for tetrahydropyranylation of alcohols and phenols

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*Polymer Science and Technology Division, Research Institute of Petroleum Industry (RIPI), 14665-1137 Tehran, Iran*

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**ARTICLE INFO**

**Article history:**  
Received 7 March 2012  
Accepted 11 June 2012  
Available online 3 July 2012

**Keywords:**  
Polymer-supported Lewis acid catalyst  
Alcohol  
Tetrahydropyranylation  
Gallium trichloride  
Phenol

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**ABSTRACT**

A simple, highly chemoselective method for tetrahydropyranylation of alcohols and phenols using polystyrene-supported gallium trichloride (PS/ $\text{GaCl}_3$ ) as a heterogeneous Lewis acid catalyst at room temperature is presented. In this catalytic system, primary, secondary and tertiary alcohols, as well as phenols, were converted to the corresponding tetrahydropyranyl (THP) ethers with short reaction times and high yields. The heterogenized catalyst is of high reusability and stability in the pyranylation reactions and was recovered several times with negligible loss in its activity and with negligible catalyst leaching, and also there is no need for regeneration. The method also shows good chemoselectivity for mono-tetrahydropyranylation of symmetrical diols.

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**1. Introduction**

stability and hydrophobic nature which protects water-sensitive Lewis acids from hydrolysis by atmospheric moisture until it is

Match Overview		
1	<b>CrossCheck</b> 466 words Tamami, B.. "Chemoselective tetrahydropyranylation of alcohols and phenols using polystyrene supported aluminium	9%
2	<b>CrossCheck</b> 201 words Borujeni, K.P.. "Synthesis and application of polystyrene supported aluminium triflate as a new polymeric Lewis acid c	4%
3	<b>CrossCheck</b> 164 words Karimi, B.. "Solid silica-based sulfonic acid as an efficient and reusable interphase catalyst for selective tetrahydro	3%



# Detection of (simultaneous) duplicate submissions

- Similarity Check cannot detect simultaneous submissions:
  - Same paper, same authors: duplicate publications distort the literature & author profiles
  - Same paper, different authors: typical of paper mill products i.e. papers for sale
- New tool being piloted to detect duplicates between Elsevier journals

NEWS FEATURE | 23 March 2021

## The fight against fake-paper factories that churn out sham science

Some publishers say they are battling industrialized cheating. A *Nature* analysis examines the 'paper mill' problem – and how editors are trying to cope.

Holly Else & Richard Van Noorden

# Image manipulation / duplication

- Duplicated/manipulated images may mean the research didn't take place as reported or didn't take place at all (e.g. papermills).
- Up to 4% of papers with Western blots are estimated to contain duplicate images\*. Manual detection is challenging and time-consuming, with many irregularities undetectable to the human eye.
- Potential AI solutions (with humans still in command) are emerging



# Detection of citation manipulation by reviewers

NEWS • 10 SEPTEMBER 2019

## Elsevier investigates hundreds of peer reviewers for manipulating citations

*The publisher is scrutinizing researchers who might be inappropriately using the review process to promote their own work.*

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- A small nr of reviewers/editors influence authors to add unnecessary citations during peer review in order to increase citations to their own work
- Reviewer Guidelines & reviewer instructions explicitly prohibit citation manipulation
- Elsevier is developing analytical tools to detect citation manipulation before publication

# AI peer reviewers unleashed to ease publishing grind

*A suite of automated tools is now available to assist with peer review but humans are still in the driver's seat.*

## WHAT STATCHECK LOOKS FOR

This computer algorithm scans papers for statistical tests, uses reported results to recompute the  $P$  value and flags up inconsistencies.

### Type of test

The  $t$ -test assesses differences between two groups.

### Test statistic

Compares observed values with those expected under the null hypothesis.

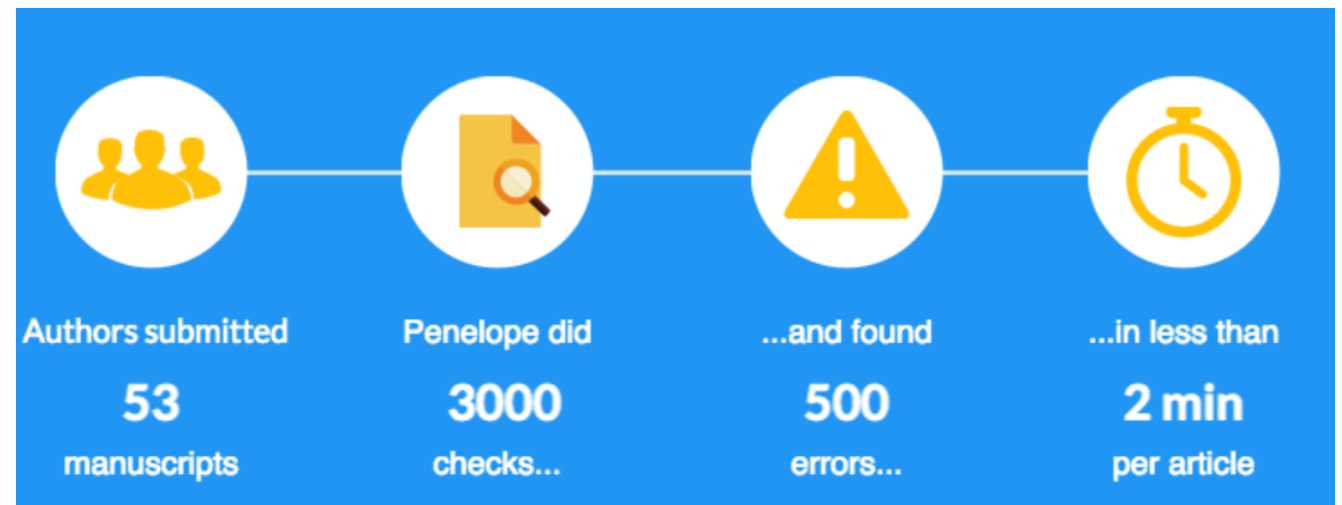
$$t(37) = 4.93, P < 0.01$$

### Degrees of freedom

Accounts for size of sample.

### $P$ value

The likelihood of observing differences as extreme, or more so, if the null hypothesis is true.



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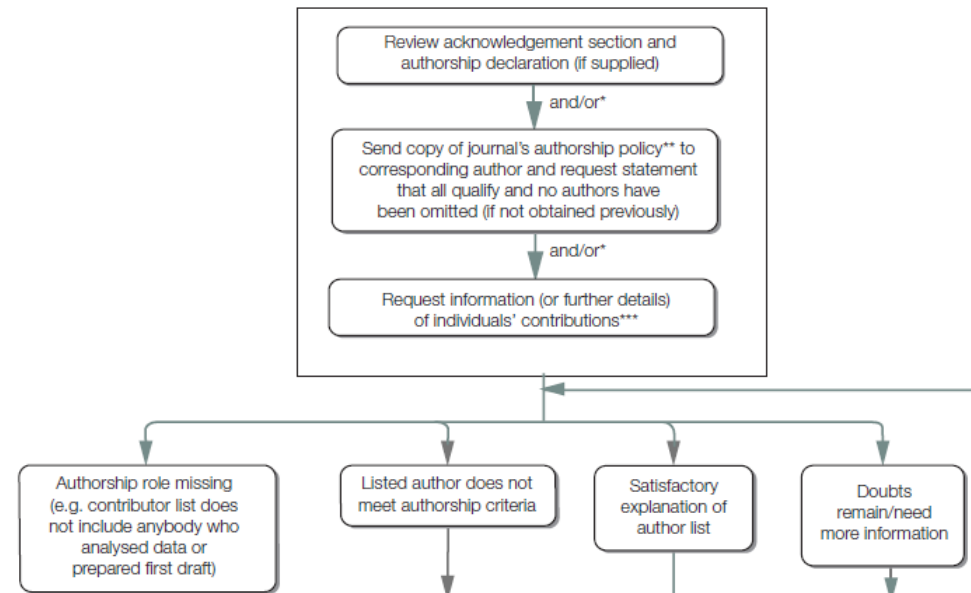


# Supporting resources for ethics allegations

- Step-by-step advice on how to handle ethics cases
- Policies, real-life case studies, flow-charts & decision-trees
- Form letters for various scenarios, approved by Legal
- Detailed Q&A for more nuanced scenarios
- Support available from our ethics, communications & legal experts



What to do if you suspect ghost, guest or gift authorship  
(see also flowcharts on Changes in authorship, as such requests may indicate the presence of a ghost or gift author)



**Publishing Ethics Resource Kit (PERK)**

[www.elsevier.com/publishingethicskit](http://www.elsevier.com/publishingethicskit)



- Started in 1997 as “self-help” group of medical editors (Lancet, BMJ)
- All Elsevier journals are members of COPE
- Website with searchable database of 300+ sample cases
- “Ask COPE anything” sessions where editors can seek advice on tricky cases
- Guidelines, e.g. revised retraction guidelines, guidelines for sharing information between journal editors
- Members only e-learning modules:



# Main mechanisms for correcting the record

- **Corrigendum:** for honest mistakes, author in agreement
- **Expression of Concern:** when evidence is inconclusive or pending investigation
- **Withdrawal** – articles in press; final articles where error was by Elsevier
- **Retraction** – 300 per year, serious ethical infringements or serious honest error
- **Removal** – very rare (<10 per year): risk to public health; patient privacy violation; very serious legal issue
- **Replacement** – extremely rare (1-2 per year). As removal but paper still makes sense without the removed information, e.g. blacked out photo.

COPECOUNCIL

RETRACTION GUIDELINES

<http://www.elsevier.com/editors/policies/article-withdrawal>

# Our goal: fair, clear, accurate, timely, accessible retractions



## Organizational Behavior and Human Decision Processes

Volume 76, Issue 2, November 1998, Pages 132–148



### RETRACTED: Interpretation versus Reference Framing: Assimilation and Contrast Effects in the Organizational Domain

Diederik A. Stapel<sup>f2</sup>, Willem Koomen

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doi:10.1006/obhd.1998.2802

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This article has been retracted: please see Elsevier Policy on Article Withdrawal (<http://www.elsevier.com/locate/withdrawalpolicy>).

This article has been retracted upon the request of the Editor and on behalf of co-author Willem Koomen. The Levelt Committee, formed by Tilburg University, the Netherlands to investigate the research of first author Diederik Stapel, has concluded that this article contained evidence of fraud; for more information see [https://www.commissielevelt.nl/wp-content/uploads\\_per\\_blog/commissielevelt/2013/01/finalreportLevelt1.pdf](https://www.commissielevelt.nl/wp-content/uploads_per_blog/commissielevelt/2013/01/finalreportLevelt1.pdf)

<sup>f2</sup> Address correspondence and reprint requests to Diederik A. Stapel, Department of Social Psychology, University of Amsterdam, Roetersstraat 15, 1018 WB Amsterdam,

ORGANIZATIONAL BEHAVIOR AND HUMAN DECISION PROCESSES  
Vol. 76, No. 2, November, pp. 132–148, 1998  
ARTICLE NO. C01982802

### Interpretation versus Reference Framing: Assimilation and Contrast Effects in the Organizational Domain

Diederik A. Stapel and Willem Koomen

*Department of Social Psychology, University of Amsterdam*

We examined conditions under which contextually activated information affects strategic decision-making and found that the subjective framing of organizational issues may be affected by variables other than semantic manipulation. Context information may be used as an interpretation frame (and lead to assimilation) or as a reference frame (and lead to contrast). Whether context information instigates assimilative interpretation or contrastive comparison processes will depend on the level of categorical context–target similarity. This is demonstrated in three experiments in which participants read an unambiguous business threat or opportunity scenario prior to judging an ambiguous, strategic issue. Findings are discussed in the light of previous judgment and decision-making studies of framing and context effects.

Imagine an organizational decision-maker who is wading through the contents of an in-basket. She is making judgments and decisions based on the pieces of information she has been given by others in her organization. Some of the issues she finds in her in-basket will be clear-cut and easy to act upon, but most of them are probably somewhat equivocal (Highhouse, Pease, & Leatherberry, 1996). What factors may influence the ways in which a decision-maker interprets and evaluates ambiguous organizational issues?

This research was supported by Grant 575-70-074 from the Dutch Science Foundation (Nederlandse Organisatie voor Wetenschappelijk Onderzoek). We thank Scott Highhouse, who inspired us to pursue this line of research and who kindly provided us with the materials used in this study. We also extend our thanks to Marcel Zeelenberg, who collected the data for Study 3, and to the anonymous reviewers who commented on earlier versions of this article.

Address correspondence and reprint requests to Diederik A. Stapel, Department of Social Psychology, University of Amsterdam, Roetersstraat 15, 1018 WB Amsterdam, The Netherlands. E-mail: [dstapel@macmail.psy.uva.nl](mailto:dstapel@macmail.psy.uva.nl)

Article remains  
online

# Retractions: common editor dilemmas

- Most editors are retracting a paper for the first time
- Finding the right balance between being **fair to authors** and **fair to readers**
- Achieving a **fair** process, an **informative** notice and a **timely** retraction can be challenging
- If an institute is investigating, should the Editor wait for outcome? Make their own decision to retract? Or publish an **Expression of concern**?
- Have the authors been given the opportunity to respond to the allegations?
- Should the **role of each author** be clarified or does it matter?
- Should authors have the chance to comment on the retraction notice?
- Have claims by authors/complainants been independently verified?
- What if someone is being **scapegoated**?
- What else are we **not** being told? Eg author requests retraction for very vague reasons
- Is a notice **libellous**? Must be factual or honest editor opinion based on fact
- The potential **human** fall out from every case

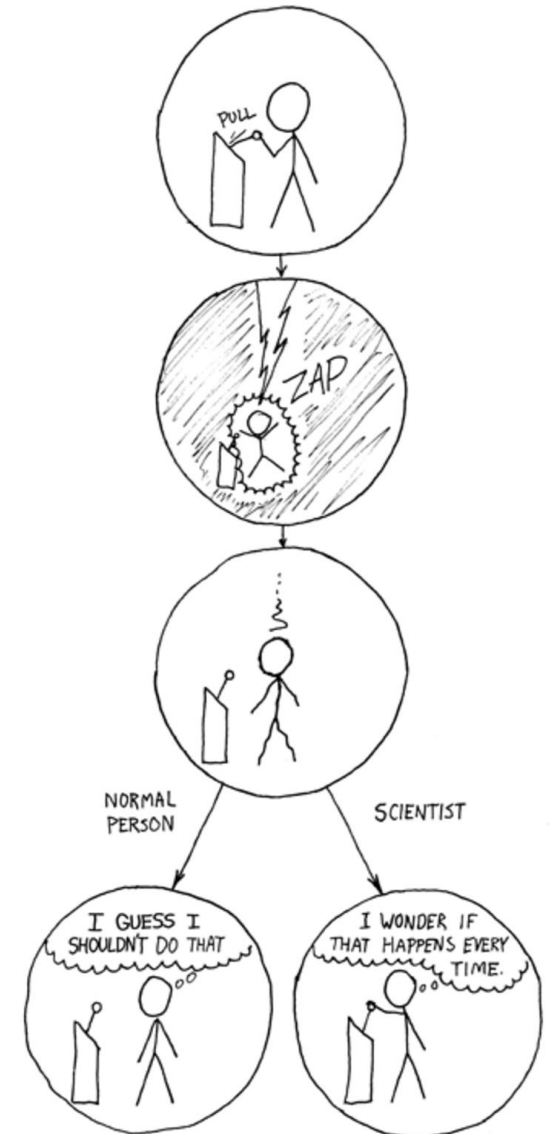
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# Reproducibility: challenges & solutions

- No common definition across all fields
- Lack of **incentives** to conduct replications
- Researchers ambivalent about **sharing data**
- **Methods** lacking in transparency/rigour
- Difficult to **validate** reproducibility during peer review
- Lack of rigour in **statistics**



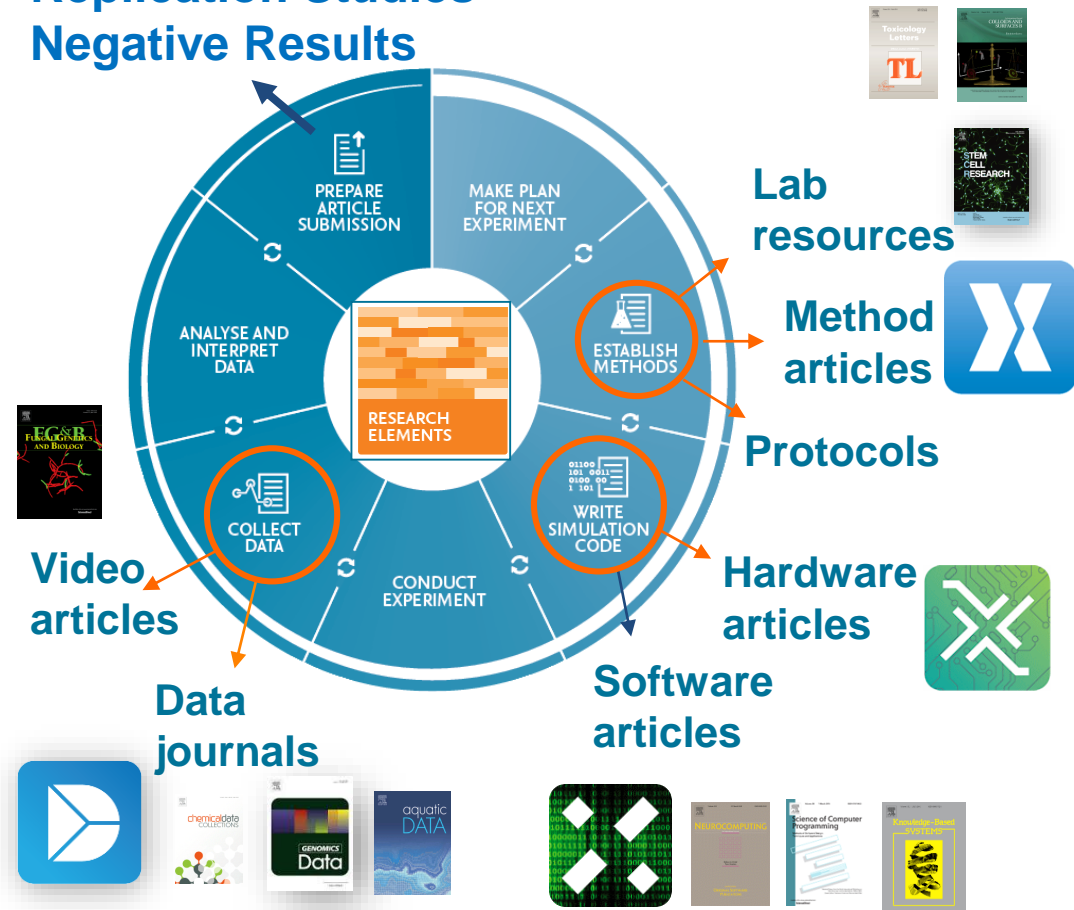
# Potential solutions to the incentive problem

- Offer researchers channels to publish all their research output, receive credit, and make research objects discoverable

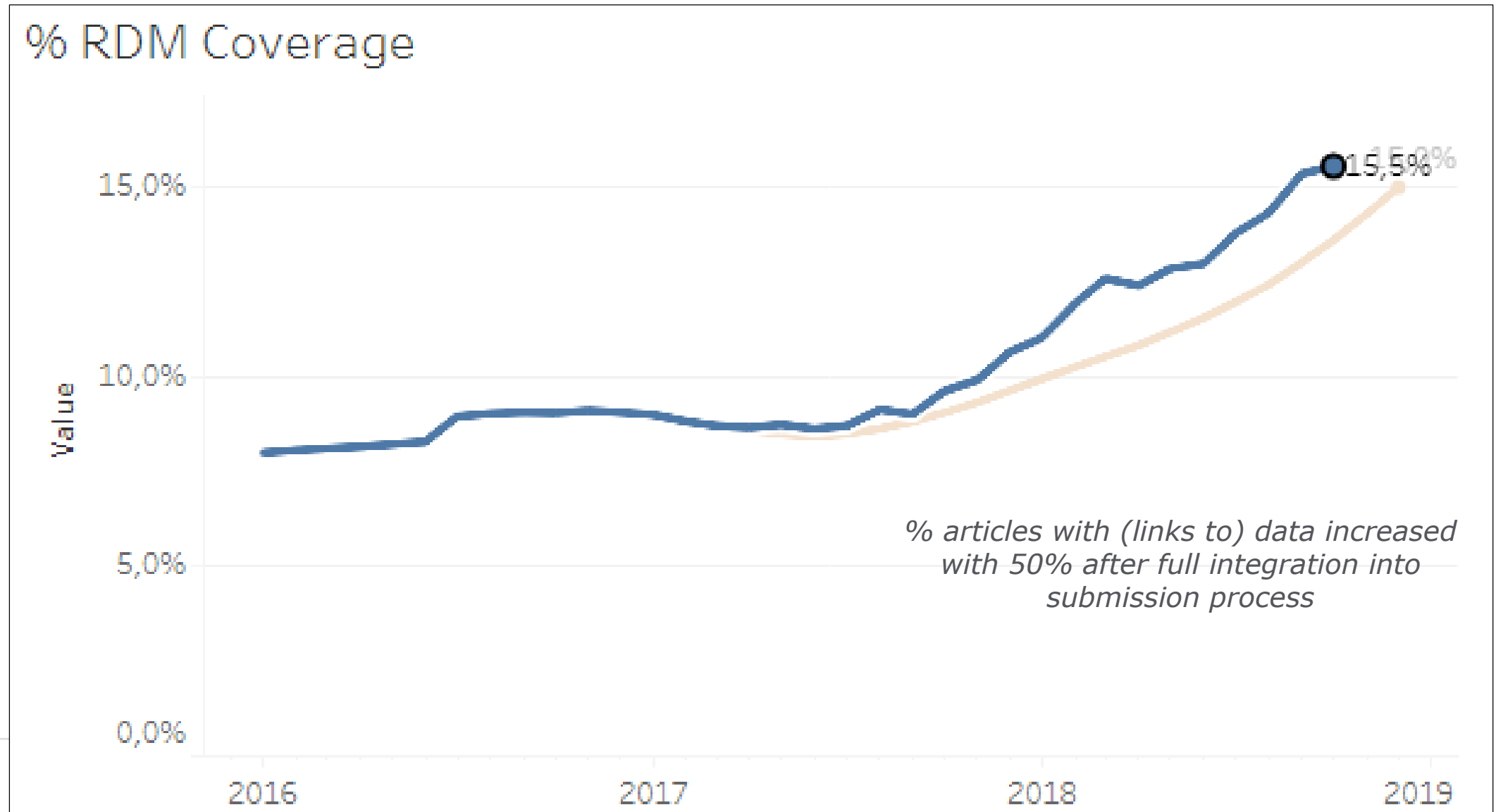
Innovative journal & article types that are:

- Easy to prepare and submit
- Peer-reviewed and indexed
- Receive a DOI and fully citable

## Replication Studies Negative Results



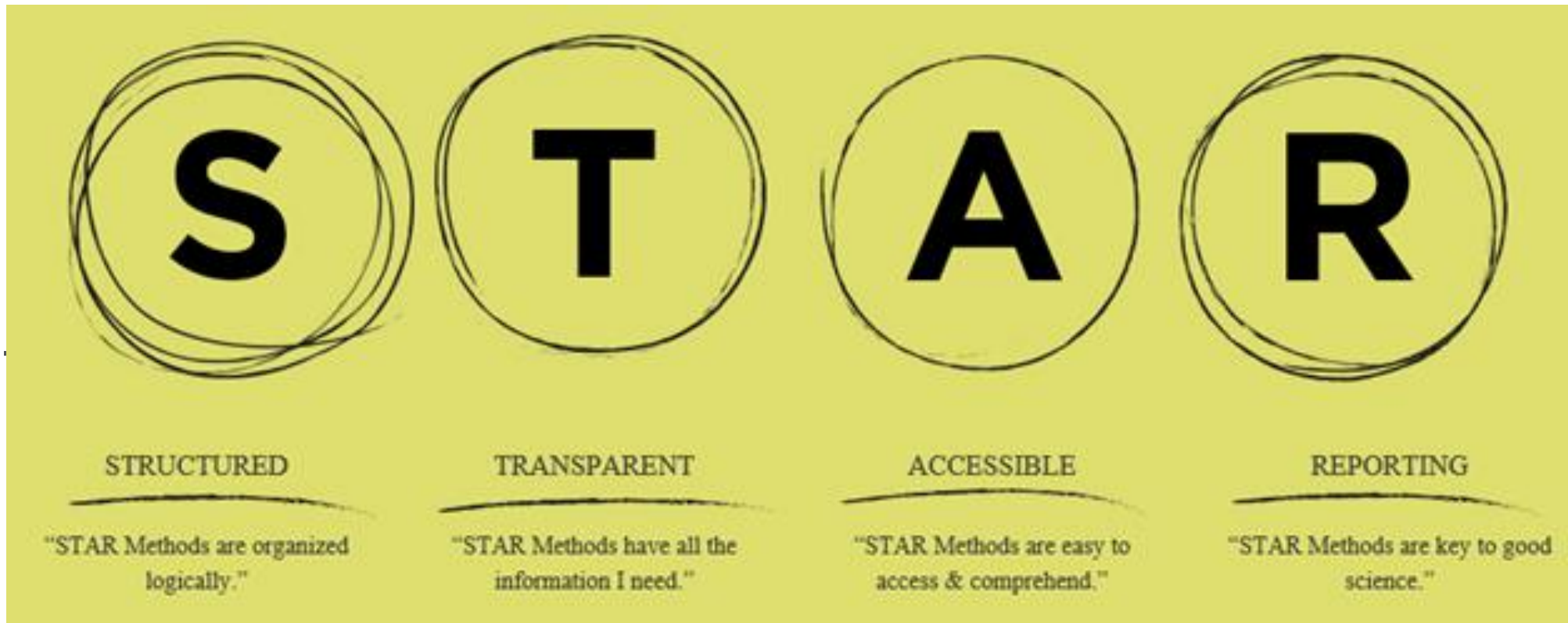
# The power of making it easy to do the right thing





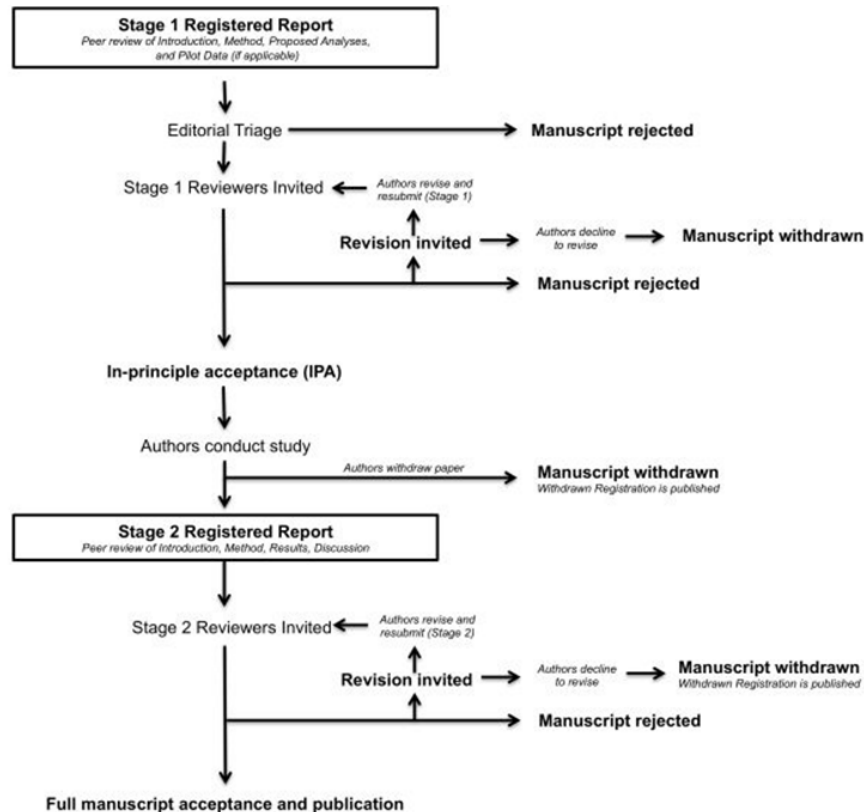
# STAR Methods

- Launched by Cell Press in 2016 to increase rigor and reproducibility
- Methods in journal articles often lack sufficient detail
- Future researchers cannot replicate the work- or even the future authors themselves!



# Solutions to the Validation challenge

- Innovative approaches: e.g. publishing reviewer reports; Registered Reports; detection of citation & image manipulation



Attitudes towards the surgical safety checklist and factors associated with its use: A global survey of frontline medical professionals <sup>☆</sup>

Ravinder S. Vohra<sup>a</sup>, Jonathan B. Cowley<sup>b</sup>, Neeraj Bhasin<sup>c</sup>, Hashem M. Barakat<sup>d</sup>, Michael J. Gough<sup>e</sup>, on behalf of the Schoolofsurgery.org

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<http://doi.org/10.1016/j.amsu.2015.04.001>

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Referred to by

Seon Lee

[Peer review report 1 on Attitudes towards the Surgical Safety Checklist and factors associated with its use: A global survey of frontline medical professionals](#)

*Annals of Medicine and Surgery*, Volume 4, Supplement 1, January–December 2015, Page S7

[PDF \(102 K\)](#)

James Clark

[Peer review report 3 on Attitudes towards the Surgical Safety Checklist and factors associated with its use: A global survey of frontline medical professionals](#)

*Annals of Medicine and Surgery*, Volume 4, Supplement 1, January–December 2015, Page S8

[PDF \(100 K\)](#)

[Peer review report 2 on Attitudes towards the Surgical Safety Checklist and factors associated with its use: A global survey of frontline medical professionals](#)

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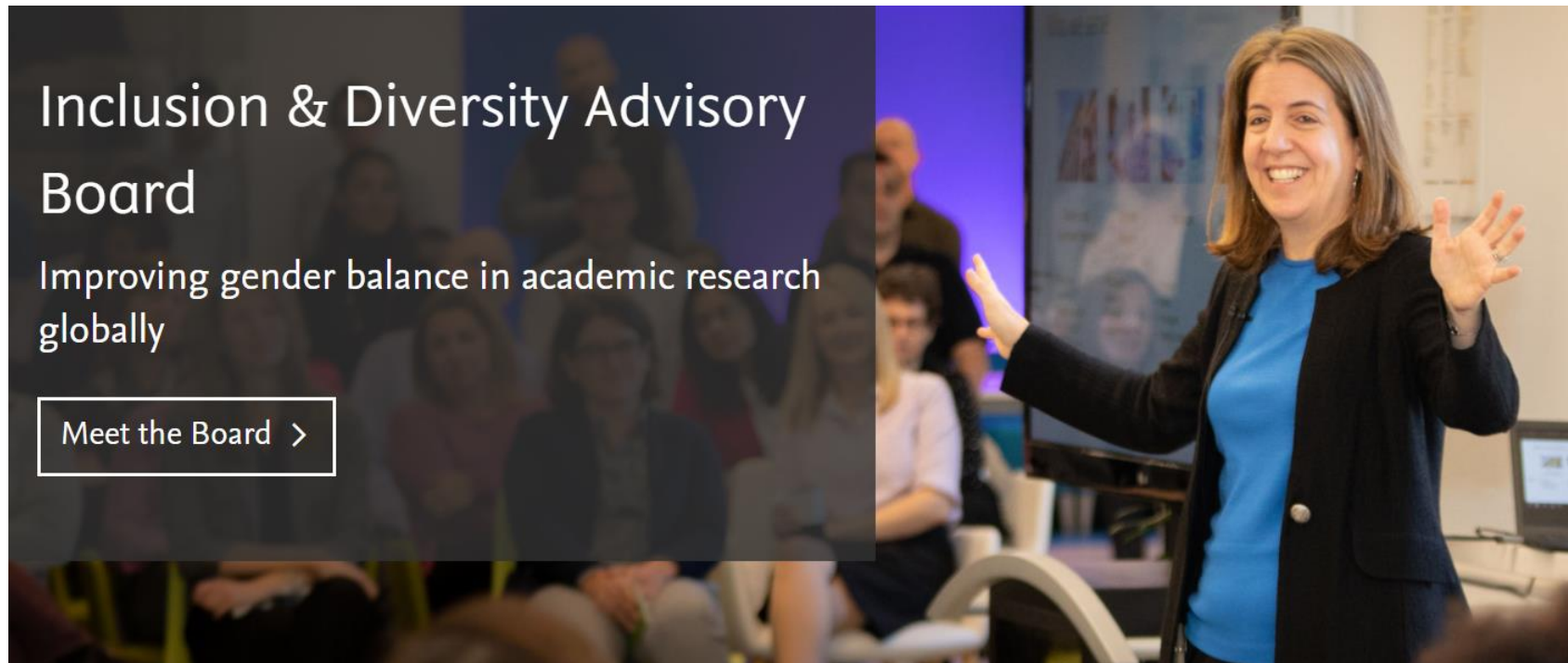
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- **Celebrating diversity**
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# Celebrating Inclusion & Diversity

- Work with research leaders, funders and institutions to drive gender and racial & ethnic equity across the STEM academic career path
- Collaborate to promote greater gender and racial & ethnic diversity and inclusion in editorial boards, peer review and scientific conferences
- Encourage enhanced sex and gender-based analysis and reporting in research studies



# Inclusive author name changes

- Changing name can undermine the author's publication history or even put them at risk of discrimination or violence
- Elsevier supports ***invisible*** author name changes to published articles for authors with a need for privacy
- Policy based on COPE Working Group principles
  - Accessible, Invisible, Comprehensive, Simple
- Validation process is ***simple & accessible***: fully respects privacy
- Update to Scopus, Web of Science, Pubmed, Portico etc.: ***comprehensive***



Elsevier launches a  
trans-inclusive name  
change policy



# Editorial policies for sex and gender analysis

Sex and gender are basic variables in preclinical and clinical scientific research.<sup>1-4</sup> Data show that physiology differs between male and female humans and animals...

*\*Londa Schiebinger, Seth S Leopold, Virginia M Miller*  
Department of History, Stanford University, Stanford, CA 94305-2024, USA (LS); Gendered Innovations in Science, Health and Medicine, Engineering, and Environment, Stanford University, Stanford, CA, USA (LS); Department of Orthopaedics and Sports Medicine, University of Washington, Seattle, WA, USA (SSL); Women's Health Research Center, Mayo Clinic, Rochester, MN, USA (VMM)  
schieb@stanford.edu

Standards for transparent reporting of sex and gender are For ICMJE recommendations

## Panel: Proposed guidelines on reporting sex and gender in medical journals

- 1 Require correct use of the terms sex and gender. Using these terms precisely increases clarity, enables critical review, and facilitates meta-analysis.
- 2 Require the reporting of the sex, gender, or both of the study participants, and the sex of animals or cells. If males and females were not studied in appropriate proportions, these elements of study design should be justified in the Methods section, and considered in the Discussion section.
- 3 Consider analysing data by sex, gender, or both where appropriate, or providing the raw data in the main manuscript, supplemental material, or in an accessible data repository. Report on the approach chosen for sex and gender analysis and comment on it in the Discussion section. In studies that are underpowered to detect sex or gender differences, access to data allows for use of those data in meta-analyses and systematic reviews.
- 4 Analyse the influence (or association) of sex, gender, or both on the results of the study where appropriate, or indicate in the Methods section why such analyses were not performed. Where those analyses were not performed, consider covering this topic in the Discussion section. Readers need to know whether the results generalise to both sexes. Include negative results as well as results that show differences.
- 5 If sex or gender analyses were performed post hoc, indicate that these analyses should be interpreted cautiously. Negative post-hoc analyses may be underpowered, leading to a false conclusion of no difference. By contrast, if many such analyses were done, the additional comparisons may lead to spurious significance suggesting an erroneous conclusion of a sex-related or gender-related difference where no such difference was in fact present. To minimise this likelihood, authors could consider making a statistical adjustment (such as a Bonferroni correction).

THE LANCET

Volume 388, Issue 10062, 10-16 December 2016, Pages 2841-2842

Home > Elsevier Connect > Reviewers' Update > The importance of di...

# The importance of diversity in peer review

Researcher Academy's latest webinar explores how early career researchers can support and encourage better and broader reviewing

By Priyanka Kalra and Christopher Tancock September 14, 2018

 Reviewers' Update



## Raising awareness

### *Webinar on sex and gender reporting guidelines for reviewers*

Peer reviewers can help identify sex/gender blindness in research and flag concerns if the sample(s) from which authors draw their conclusions could be impacted by differences or similarities in terms of sex or gender.

<https://t.co/3x4jc8Ya3o>





# Promoting gender diversity in editorial boards

## **Actions that can be taken by editors**

- Ask women editors to nominate women to boards
- Consider rising stars rather than established scientists (men too)
- Review selection criteria and conventional selection metrics
- Use positive messaging to engage with women scientists
- Share success stories – for use in board meetings on ppt slide

## **Actions that can be taken by publishers**

- Promote visibility of women editors already serving on boards
- Appoint more women editors to leadership roles
- Arrange webinars/round table discussions on diversity and gender
- Limit the serving period to 3 or 4 years
- Consider various metrics and measures for appointments



Thank you

