What’s wrong with current metrics?

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Swiss Academy of Sciences | BERN | 21 Nov 2018
tl;dr

Metrics narrow our focus to academic outputs and academic prestige (i.e. journals)

This is unhealthy for research – and for researchers (who are human beings)

We can do better
We need to assess research but how should we define success?

“Don’t aim at success [...] for success, like happiness, cannot be pursued; it must ensue, and it only does so as the unintended side-effect of one’s dedication to a cause greater than oneself...”

Viktor Frankl
Not so simple: I am not my h-index (or my JIFs)
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Key
1. Important discovery - now in textbooks
2. Important discovery - major pharma interest
3. Important discovery - textbooks revised
4. Valuable negative result & UG student training
5. Impactful policy paper (>23k PDF downloads)
6. Much discussed history and policy paper
7. See how much the h-index doesn’t count
Correlation between JIF and citation rate of articles from individual scientists is poor

4 different researchers

“...authors do not necessarily publish their most citable work in journals of the highest impact, nor do their articles necessarily match the impact of the journals they appear in.”

Even with distributions, we need to ask: what do citations mean?

“Respondents view both cited papers and significant papers differently than papers that should be shared with chemists. We conclude from our results that peer judgements of importance and significance differ from metrics-based measurements...”

PLOS ONE | https://doi.org/10.1371/journal.pone.0194903
Negative effects of over-reliance on metrics based on academic outputs

Sick of Impact Factors
Posted on August 13, 2012 by Skeeter

I am sick of impact factors and so is science.

The impact factor might have started out as a good idea, but its time has come and gone. Conceived by Eugene Garfield in the 1970s as a useful tool for research libraries to judge the relative merits of journals when allocating their subscription budgets, the impact factor is calculated annually as the mean number of citations to articles published in any given journal in the two preceding years.

http://occamstypewriter.org/scurry/2012/08/13/sick-of-impact-factors/

“Our people know how to get the Nature papers...”
Faculty Dean (University of X)

“I’m really excited. We just had a big paper in Cell... I”
Postdoc (University of Y)

• slows publication & reduces productivity
• positive bias in the literature
• JIF correlates with retraction rate
• impact on reliability & public trust?
• devaluation of other important activities
• stress on the individual

“Despite personal ideals and good intentions, in this incentive and reward system researchers find themselves pursuing not the work that benefits public or preventive health or patient care the most, but work that gives most academic credit and is better for career advancement.”

Frank Miedema
https://blogs.bmj.com/openscience/2018/01/24/setting-the-agenda-who-are-we-answering-to/
New tools and processes for assessment

**Researcher assessment at UMC Utrecht**
1. Research, publications, grants
2. Managerial & academic duties
3. Mentoring & teaching
4. Clinical work (if applicable)
5. Entrepreneurship & community outreach

**Charité University Hospital, Berlin**
- Your scientific contribution to your field
- Your 5 most important papers
- Your contribution to **open science**
- Your most important collaborations

More examples at: [https://sfdora.org/good-practices/](https://sfdora.org/good-practices/)
**A public good: how *open* science can be *better* science**

**Preprints**: faster communication; worldwide access  
Focus on the content, not the container (journal)  
- Valuable groundwork for journal-indep. evaluation  
Largest possible audience (sharing + scrutiny = reliability)  
- Same applies to OA papers  
Practice encourages **open peer review**  
**Data sharing**: scrutiny benefits (reliability)  
Better for changing the world (utility & impact; e.g. Zika crisis)
Plan S and the future...?

“We also understand that researchers may be driven to do so by a misdirected reward system which puts emphasis on the wrong indicators (e.g. journal impact factor). **We therefore commit to fundamentally revise the incentive and reward system of science**, using the San Francisco Declaration on Research Assessment (DORA) as a starting point.

[https://www.scienceeurope.org/coalition-s/](https://www.scienceeurope.org/coalition-s/)
But good practices don’t spread by themselves (or by declarations...)

Why was anaesthesia adopted more rapidly than antisepsis?

“We yearn for frictionless, technological solutions. But people talking to people is still how the world’s standards change.”

http://www.newyorker.com/magazine/2013/07/29/slow-ideas
Thank you

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