

Responsible use of research metrics

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Why responsible metrics?

Research and researchers are evaluated all the time:

- universities are evaluated by the ministry as basis for funding
- universities evaluate their own research activities as basis for development measures or internal distribution of resources.
- research and researchers are evaluated by publishers and funders.
- researchers are evaluated for recruitment and their advancement is evaluated.

→ As evaluation has such a lot of impact on individuals' careers, or universities' funding, **it is of the utmost importance, that evaluation is conducted responsibly.**

What is responsible metrics?

- Always assessing research based on high-quality processes that are informed by the highest quality of data – availability is not the criteria to use when choosing data
- Accepting that bibliometric indicators just are less applicable in some scientific fields than in others
- Taking into account that publication databases used as basis for bibliometric analyses have different coverage for different disciplines
- Realizing that metrics does not recognize scientific quality by itself, but it can be used to indicate certain characteristics that are considered dimensions of scientific quality
- Making sure that metrics only support expert judgement, never replace it
- Understanding that using metrics has consequences – “you get what you measure”

(some) challenges in using metrics responsibly

Comparing SSH fields with STEM on e.g. citation counts

- Different scientific fields have different publishing cultures
 - International publishing databases cover only certain types of scientific production (i.e. journal articles), that are mainly written in English
- Coverage of publishing databases is quite comprehensive for natural and medical sciences, but it covers only a fraction of humanities and social sciences

Metrics are relatively easy to use, and with helpful tools nowadays available (such as SciVal and InCites) practically anyone can make their own bibliometric analyses

- Without the understanding of the meaning of different indicators
- Without the understanding of the limitations of different indicators

→ At the core of responsible metrics lies the understanding of the limitedness of both the indicators and the data used as basis for analyses

→ Producing and using metrics requires expertise

Responsible measuring of impact?

Using indicators without recognizing their limitations:

- **H-index** → very dependent on researcher's age, unfair for early career researchers; varies a lot according to scientific fields; relatively easy to self-inflate; different databases give very diverse results...

... or for the wrong purposes:

- **JIF** (Journal Impact Factor) → originally created as a tool for librarians to identify journals to purchase, yet it is often used to measure the quality of an article (or a researcher!), when it actually equals the average number of citations of the publications of a journal; easily manipulated by editorial policy

Responsible metrics in Tampere University

There are several international and national guidelines that are followed closely when developing the monitoring and assessing of the quality and impact of research at Tampere University:

DORA-declaration (2012) → "It is imperative that scientific output is measured accurately and evaluated wisely."

Leiden manifesto (2015) → the encapsulation of best practices in metrics-based research assessment

Metric tide (2015) → clear principles for managing and assessing research, including the role of quantitative indicators in management and assessment

Universities Finland UNIFI Open science and data action programme, measure 4: "Commitment to DORA and recognition of transparency as a merit for the researcher career."

Federation of Finnish Learned Societies (TSV): Responsible evaluation of researchers –working group 2018-2019

Open Science Coordination : Responsible metrics –working group 2018-2020

Tampere University has signed the DORA declaration and therefore commits to improving the evaluation of scientific outputs by making their assessment more transparent, equal, and versatile.

Why should you care?

Already as PhD-students, your scientific work (and you as researchers) is evaluated all the time. Have an interest in HOW you are evaluated. Demand transparency and openness.

Since most metrics are based on citations, always make sure you give credit to where credit is due:

- Good scientific practice in referencing: do not plagiarize, ever.
- Whenever appropriate, cite primary literature rather than reviews.

Promote the value of a variety of research output – journal article is not the only significant result!

If you are involved in a committee making decisions about funding or hiring, make assessments based on scientific content rather than publication metrics.

Further reading

Hicks, D. et al., 2015. Bibliometrics: the Leiden Manifesto for research metrics. *Nature* 520, 429–431.

San Francisco Declaration on Research Assessment <https://sfdora.org/read/>

Wilsdon, J. et al. 2015. *The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management*. HEFCE.