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Better selection of scientific articles to be relayed

- Journalist use Open Science (OS) tools -

Sylvie Vullioud. Fake press article as poster for Swiss Open Science Action Plan Kick-Off 17.10.2019

Open Science – an opportunity for science journalism

● «Main challenge between Open Science and journalism could be pre-prints servers»

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CC-BY-SA Sylvie Vullioud, citizen

Originally published as fake Swiss journal Le Temps article

Publication pressure for researchers and the new 'pay for publish' model may favor the publication of methodologically weak studies, falsification or selection of data, biases driven by economic interests or opinions - this same in well-known prestigious journals - and the growth of *predatory journals*. The evaluation of sources by the reputation of authors or a scientific journal is no longer sufficient.

It is common for the media, starting with the institutional communication services, to amplify the scope of some research, relay still fragile and unconfirmed exploratory studies, or contradictory articles that 'cancel each other out' (- one can find for the same food at least one item that causes cancer or fights it). Citizens may become incredulous, relativistic, or adhere to conspiracy theories; so distrust of science continues to grow; patients and their loved ones are disillusioned by the broken promises.

Open Science training for media

At the Swiss Open Science Action Plan Kick-Off event of October 17th 2019, the Swiss National Science Foundation (SNSF) and swissuniversities are committed to publicizing the new sources of information generated by OS to journalists and institutional communicators, at the same time of the implementation of the OS Action Plan for researchers and research managers. Content evaluation trainings, workshops, round tables, online guides, and resource persons in 'data science' and statistics will be organized.

Transparency with Open data and badges

A quick analysis of the content quality of published articles, even already reviewed by peers, is essential in the selection phase of articles to popularize. Especially for areas with high social impact, such as psychology, medical treatments, nutrition, environment and economics. Access to 'raw and analyzed data', simulation methods, and sensitive data access restriction justification, allow rapid assessment of the quality of a scientific article.

Studies whose assumptions and methodologies are pre-recorded, and whose data and protocols are open, are often attempts to confirm exploratory articles ('*exploratory research*' versus '*confirmatory research*'). They may be robust, and therefore relevant to relay. They are sometimes marked with badges awarded by the Open Science Foundation (OSF).

Journalists who relay research results could seek the advice of statisticians data journalists who are used to represent and interpret data within the limits of their validity.

Pre-prints servers: a difficult use

A 'pre-print' is a version of a scientific author manuscript freely accessible on a public server, before a formal review by peers selected by journal editors. By sharing this manuscript, the authors seek the quick exchange of ideas and contradictory debates to improve the manuscript and make it robust. Journalists learn to identify pre-prints and peer-reviewed articles. Journalists should be cautious in looking for scoops in the boiling pot when science is being made. And also: should a journalist relay a pre-print never published by a scientific journal or platform?

Open-, post-reviews and contradictory debates

OS allows the journalist to publicize a pillar of scientific culture: the contradictory debate, and the practice of reasoned and argued doubt.

Online comments of article (including pre-prints), 'open peer reviews', newspaper articles, social scientific networks, retraction databases, and 'reproducibility projects' allow access to constructive controversy

Only discoveries that resist the onslaught of contradictions turn into knowledge.

Writings closed to primary sources

In order to preserve the scope limitations of the new studies set out by the researchers, and to avoid 'Chinese whispers' type of distortions, the journalists ensure that institutional communication services have reread and signed their communications by the researchers. Weaknesses or limitations of study are mentioned by journalists for readers or listeners. The transposition of results on mice to humans is relativized. The exploratory nature of a study must be made explicit. The differences between correlations and causes are explained. Contradictory arguments are presented. The links of interests are mentioned and commented.

The very delicate studies of the complex human traits - characters, behaviors, mental illnesses, economic powers, and political opinions - associated with genomic 'Big Data' must be inspired by the explanations popularized by researchers in FAQs. If not existing, FAQs are co-written by the journalists with the authors along with press article. If not possible, journalists may avoid relaying this type of research possibly interpreted as determinism favoring political extremes, communitarianism, racism, xenophobia, homophobia, etc?

In the digital age, in any case, the science journalist mentions the primary sources of the subject presented with the 'Digital Object Identifier' (DOI) of the 'Open Access' article (from the publisher or a 'Institutional Repository'), the 'data paper' and the 'datasets' in the print media, and provide links in digital version of article newspaper.

Swiss citizens, politicians and researchers will appreciate this high quality 'sound science' highlighted by journalists who carefully avoid to spread 'flawed science' and 'fake science'.



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Training

[OpenScience MOOC](#)

Tools

[PubPeer](#), [RetractionwatchDatabase](#), [ORCID](#), [DOAJ](#), [Cabells](#), [Transposc](#), [Unpaywall](#)

Recommended readings

2019 [53% of journalists surveyed weren't sure they could spot flawed research](#)
 2019 [Hyped-up science erodes trust. Here's how researchers can fight back.](#)
 2019 [AAAS: Machine learning causing science crisis](#)
 2017 [Rigor Mortis](#), ISBN 978-0-465-09790-6
 2012 [Reproducibility Project: Cancer Biology](#)
 2011 [Reproducibility Project: Psychology](#)
 2011 [Experimental Economics Replication Project](#)
 2010 [The Social Sciences Replication Project](#)