Quality control in science

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Each year, 1.7 million scientific articles are published (as of 2017), which are listed in the reputable Web Of Science database. Web Of Science lists only recognized scientific journals. The journals of the publishing company OMICS, an example of a predatory publisher, are currently not listed in Web Of Science. Compared to the number of articles listed in Web Of Science, the total number of articles distributed by OMICS is less than 0.9% (as of 2017). Apparently, this is rather a marginal phenomenon.

In the years 2007-2017, the Max Planck Society has produced more than 120,000 scientific articles with the participation of Max Planck authors. Amongst these articles, only nine articles appeared in OMICS magazines. This is a negligible share of 0.01% of MPG articles. At least three of these publications are transfers, i.e. at the time of publication the journal was produced under the umbrella of an established scientific publisher and only later purchased by OMICS. This means that not all articles distributed under the umbrella of a dubious publishing house are automatically spurious.

Science means discourse

The scientific publication system, particularly with regard to journal articles and conference proceedings, not only serves to publish scientifically verified facts, but also to bring speculations, theories, hypotheses, observations, and indications of knowledge which still need to be examined and discussed scientifically, to the scientific discourse. It is a usual practice in the scientific publication system to publish articles that have not yet been reviewed by third parties (so-called preprints or articles that are published in the modern post-publication review process). It is also quite usual to publish interesting, not yet reviewed or not yet verifiable considerations in quality-assured journals (in the context of quality control, for example, it is examined in the peer review process whether the considerations are presented in a manner appropriate to science, i.e. in particular whether they are argumentatively comprehensible and falsifiable).

It is part of the normal working procedure of a scientist to categorize every scientific publication before use according to the criteria of 'fact vs. scientific speculation vs. non-scientific nonsense'. Brands and names can serve as a supporting aid, but ultimately only a critical scientific examination of the content of the article can be decisive.

Is Open Access vulnerable to predatory publishing?

Open Access changes access to research results and is particularly suitable for re-use through its transparency, traceability, verifiability, and reproducibility and also contributes to accelerating innovation cycles. To ensure a provider's integrity, it is possible to obtain comprehensive information on the quality review, transparency of procedures and ethical foundations of Open Access journals, e.g. via the Directory of Open Access Journals (DOAJ) or the information portal Think-Check-Submit. In addition, local libraries at scientific institutions support researchers with their expertise in the selection and evaluation of suitable publication venues. Good Open Access publishers have the same—and in some cases, due to greater transparency, even higher—quality standards than traditional publishers.

Of the total number of scientific articles listed in the WOS, 15% appear as Open Access from the day of publication. 50% of the articles are not necessarily open access from the day of publication, but become open access at a later date. The share of Open Access is growing from year to year. This market is currently undergoing a major transformation as a result of the advance of Open Access publication models.

What is predatory publishing?

'Predatory publishing' refers to exploitative business models of fraudulent publishers, conference organizers or online journals. They fake high-quality publishing business processes and a competitive pricing structure, which are common with reputable publishers. However, fraudulent publishers tend to provide no quality assurance (peer review or editorial board etc.) and little to no editorial oversight, or not according to applicable standards, while fees for publication are excessive.

The practices of predatory publishers and conference providers include:

- Imitation and copy of titles and layouts of renowned magazines;
- Excessive fees for article revisions,
- Unusual additional fees, for example for the submission of articles;
- Exclusion of the researchers from the right to disseminate their own publications through contractual clauses followed by significantly overpriced sale of access to scientific organizations;
- Inflating the magazine fleet to be subscribed to under a renowned publishing house brand with additional magazines of little relevance;
- Misleading use of fleet symbols (e.g. brands, layout) and statistical averages (e.g. journal impact factor) as alleged quality indicators for specific content
- Advertising for participation and contributions to conferences with apparently renowned conference proceedings and supposedly high visitor numbers

Many non-scientific players, who are often driven by economic or political interests or by personal beliefs, have a keen interest in appearing scientifically credible. Extensive commercial 'service' providers in the area of publication, conference, 'study', think-tank, and marketing have established themselves for this purpose. The scientific working methods are generally well suited to deal with such non-scientific representations in scientific guise and to separate them from genuine scientific content. Due to the balance of power – the lobby forces outside science tend to be stronger – for reasons of efficiency and sometimes even for reasons of personal protection (e.g. by editors and reviewers), generally not very confrontational, but for science sufficiently effective measures of classification are employed.

In order to combat practices such as predatory publishing – regardless of

whether in connection with the traditional subscription model or Open Access—it is primarily important to become as informed about this threat as possible and to continue to raise awareness for high quality and serious practices. The Max Planck Society does this, amongst other things, on the basis of its rules on good scientific practice. Furthermore, it is also a question of ensuring competition among publishers in terms of quality and prices.

Provided by Max Planck Society