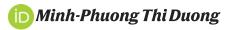# Transparency in the retraction process: The honesty and self-correction spirit of scientists

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December 20, 2023

When it comes to the issue of retraction in academic publishing, a large number of scientists will feel nervous and hesitant because this is perhaps the least desired outcome for researchers. The retraction of scientific articles has long been associated with serious errors or scientific misconduct, significantly impacting the reliability and validity of research results. Consequently, the retraction of research articles can leave a permanent stain on the records of researchers whose articles are retracted [1,2].

However, scientific retractions are not intrinsically bad but rather an essential mechanism in the self-correction process of academic research. It demonstrates the scientific community's commitment to the accuracy of the knowledge system they provide to society. This process directly influences research quality, academic ethics, scientific culture, the scientific publishing system, and the research training process. More profoundly, it also affects the effectiveness and relevance of investments in science, public trust, and the reliability of scientific results applied to society, such as in planning, policymaking, teaching, medical examination and treatment, and business operations.

Academic retractions have been practiced since the 1970s, and in August 2010, the Retraction Watch Database (https://retractionwatch.com/) was established. However, it was only recognized as a significant global issue by the scientific community after the surge in both the number and impact of retracted articles during the COVID-19 pandemic. According to a recent analysis by Nature, the number of scientific research articles has

rapidly increased since 2020. From the beginning of 2023 to December 8, 2023, the number of retracted scientific articles exceeded 10,000, nearly double that of 2022 [3]. This increase is not just in quantity; the retracted articles are also associated with long-standing journals of high prestige, such as Nature, Science, PNAS, Lancet, The New England Journal of Medicine, etc.

The rapid increase in retracted scientific articles results from the substantial growth in the number of research articles published each year. By 2022, 2.8 million research articles were published, representing an almost 50% increase compared to seven years ago [4]. As research volume proliferates, risks to scientific quality become more pronounced. Errors in methodology, often stemming from haste or inadequate study design, are a major contributor to estimation issues and inaccurate data analysis [5]. Data manipulation, whether intentional or unintentional, along with plagiarism and ethical issues, has also become a significant reason behind retraction decisions [5].

At the same time, retraction also reflects the growing efforts of researchers and editors to mitigate the presence of low-quality scientific outputs. The contemporary quality control process is further strengthened by the advent of plagiarism and image-editing detection software. These tools not only assist editorial boards in identifying low-quality research articles, plagiarism, and misconduct in the publication process but also show the potential to decrease the future retraction rate, as poor-quality research articles can now be promptly eliminated during the review process.

Illustration: Retracted. Source: https://www.si.umich.edu/about-umsi/news/flawed-research-not-retracted-fast-enough-prevent-spread-misinformation-study-finds

Retraction is a self-correction mechanism within the scientific community, aiming to refine the knowledge system for humanity - an imperfect but progressive process. However, the increasing number of retracted articles results in a loss of public trust and raises doubts about the reliability of scientific research and journals. In such a situation, transparency becomes a core factor in mitigating the negative effects of the academic retraction process.

Therefore, retraction notices need to contain more information so relevant stakeholders can access useful details, enabling more comprehensive assessments of the retracted article. This approach helps prevent speculative evaluation, which could otherwise lead to discrimination and unjustified fear [6]. To enhance transparency, Vuong [1,7] has proposed that retraction notices should clearly state the following points:

- Who is the initiator requesting the retraction, including the author, editor, publisher, university, or even readers?
- What's the serious reason/error leading to the retraction of the article?
- Do post-publication reviews flag the quality of the article?
- Is there a consensus between the editorial board/publisher and the author in retracting the article?
- Is the research article associated with any fraudulent behavior?

Transparent communication plays a key role in reducing reader skepticism and reinforcing a commitment to integrity in scientific research [8]. In particular, the honesty of scientists and editorial boards is always the foundation of social trust in research results. When an article or publication is retracted, scientists and those responsible for the research must work together to clearly and honestly share as much information as possible [1].

References

[1] Vuong QH. (2019). The limitations of retraction notices and the heroic acts of authors who correct the scholarly record: An analysis of retractions of papers published from 1975 to 2019. *Learned Publishing*, 33(2), 119-130.
https://onlinelibrary.wiley.com/doi/abs/10.1002/leap.1282

[2] Smart P. (2018). A sting in the tail? *Learned Publishing*, 31(4), 331–333.
https://onlinelibrary.wiley.com/doi/pdf/10.1002/leap.1202

[3] Noorden RV. (2023). More than 10,000 research papers were retracted in 2023 – a new record. *Nature*. https://www.nature.com/articles/d41586-023-03974-8

[4] Kristiansen N. (2023). The amount of research in the last seven years has grown by 50 per cent. Are important findings being overlooked? https://www.sciencenorway.no/research-research-communication/the-amount-of-research-in-the-last-seven-years-has-grown-by-50-per-cent-are-important-findings-being-overlooked/2288899

[5] Taros T, et al. (2023). Retracted Covid-19 articles: significantly more cited than other articles within their journal of origin. *Scientometrics*,128 (5), 2935-2943. https://link.springer.com/article/10.1007/s11192-023-04707-4

[6] Noorden RV. (2011). Science publishing: The trouble with retractions. *Nature*, 478, 26–28. https://www.nature.com/articles/478026a

[7] Vuong QH. (2020). Reform retractions to make them more transparent. *Nature*, 582, 149. https://www.nature.com/articles/d41586-020-01694-x

[8] Ho MT, et al. (2021) Total SciComm: a strategy for communicating open science. *Publications*, 9(3), 31. https://www.mdpi.com/2304-6775/9/3/31