

Peer review and publications

On 6 October 2015 I gave the following presentation on Peer Review and Publications, during the workshop on Peer Review, organised by LERU (the European League of Research Universities) in Amsterdam.

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1. When we wonder what the future of peer review might or should be like, it is helpful to address the following questions:
 - Why and how was peer review in connection with publications started?
 - What would go wrong when there would be no well organised peer review for publications?

People often connect the start of peer review with the emergence of the first scholarly journals: *Journal des Sçavans* and *Philosophical Transactions* in the 17th century. However, there is more history to the concept of peer review than this.
2. Journal peer review has played and continues to play an important role in boundary setting: the review of scientific texts against dominant knowledge practices that shaped what was or was not scientific, so-called boundary judgments. Boundary judgments were known before the start of scholarly journals; more specifically in the context of inquisition and censorship.
3. Through its Inquisition actors (often religious scholars) the Church openly suppressed error in scientific exchange, especially in connection with the investigation of heresy. The goal of their judgment was: giving heretics an opportunity to repent which meant returning to the faith and the dominant Latin-Christian-sanctioned scientific knowledge.
4. Structural properties of inquisition:
 - Judgments and decisions occurred after scientific knowledge had circulated.
 - It was concerned with of accountability to the orthodox doctrine.
 - Scholars acted as authors and frequently also as inquisitors judging written work.
 - Inquisitors were non-anonymous.
 - The inquisitor procedures were secret to outside actors but final verdicts and sentencing details were open.
5. Through the advent of the printing press there was increased potential for scientific written text in terms of availability and distribution. In order to prevent large scale distribution of heretic texts, the need for boundary judgments before publication arose. This is known as censorship, the gatekeeping of scientific ideas. As a consequence, scientific exchange now had become dependent on boundary judgments. However, scholars kept trying to maintain a separation between scientific exchange and boundary judgment decisions.
6. The rise of experimental natural philosophy (which was getting away from Church controlled metaphysics) called for an increased communication between scientists: to exchange ideas and to claim their personal results. This brought forward a distinction between:
 - Author-pay publication models for essays, books, letters, which remained to be contingent on censorship;

- reader-pay models for shorter texts though peer reviewed journals. Within a context of frequent stealing of scientific works, the form of early journal peer review with an editor emerged. The shorter journal format was better suited to publish quickly and prevent the theft of written works.
7. Gradually, learned societies claimed internal control over journal review and publication. Censorship and inquisition dissolved and boundary judgments became a scientific practice under science's now self regulating practices. These judgments were shared with authors; archives could be consulted by society members but were structurally closed to access. Thus exchange became dependant on boundary judgments. It is difficult to pinpoint when referee anonymity became a widespread practice in journal editorial peer review.
 8. The structurally closed form of traditional peer review with anonymous referees, increased power in the role of editor, and lack of transparency for editorial judgments and boundary judgment decisions, is less likely to contribute to rational decision-making (like "faceless courts") and appears more susceptible to abuse by publishers, authors and editorial readers. Hiding the messiness of valuation of scientific knowledge in traditional peer review can be an important tool to uphold journal business models that tend to give scientific knowledge a meaning of NEWS.
 9. This brings us at the position of journals. Generally, four functions of journals are distinguished: registration, peer review, dissemination and archiving. This combination of functions might have been useful in the past, but since the revolutionary developments of ICT's there is no longer a need to combine them to be carried out by one organisation, a publisher.
 10. Since the phenomenon of the distribution of publications has been radically enhanced through ICT's, there is a serious need for change of the traditional business model for publication, being the subscription model for journals. Open Access models, in which access and use are free for the readers, are more in tune with modern technology as well as the present needs of science and society. Traditional commercial publishers are reluctant to implement this change.
 11. There is a lot of criticism on the present peer review system connected with journal publications: it is said to be slow, expensive, largely a lottery, poor at detecting error, ineffective at diagnosing fraud, biased, prone to abuse. The traditional roles of the journal publisher could be decoupled and be taken over by the academic community, thus creating opportunities to organise them in ways that are more in tune with the demands of science and society. We certainly would not invent the publisher and the traditional journal in their present form in modern times.
 12. Whether or not they are organised in the form of journals, there is a need for publications as records of the results of science, for the purpose of communication of the progress of science and and the registration of results. As such they are crucial to the reputation and reliability of scientific research. There is no absolute need to filter publications before they are exchanged. But there is a need of an assessment by peers, which is crucial for colleagues, public and policymakers; this implies a check on
 - Soundness and validity
 - Originality and significance.

13. There may be arguments in favour of a check on soundness and validity before publication. However, there is no need to judge originality and significance before publication. The concept of quality is more complex than this. One of the aspects is impact which can only be judged after publication. Metrics may play a role in this.
14. Important criteria for the peer review of publications are the following:
 - Rational decision making
 - Trust, accountability to judgments, and credit for the role of referee
 - Contingency on scientific exchange
 - Accountability to submitted manuscripts for the role of the author.
15. More open reviewing serves other important academic values besides quality control, such as generating discussion, improving works in progress and sharing information rapidly. Exclusiveness of reviewers can help ensure quality control but can also narrow the range of feedback and participants.
16. Conclusions
 - Publications and peer review of publications are needed for the purpose of communication and registration of research results.
 - Peer review of publications should have a maximum transparency, which means an open process after publication.
 - Peer review of publications should be decoupled from the present system of journals.
 - Publications and peer review of publications play a limited role of the overall judgement of quality of research and researcher.