Description

Publishing research helps the public benefit from your academic research. Other scientists can learn from your paper. Some may use it as the basis for their experiments. The peer review process exists to make sure that academic publishing highlights only quality research. However, this system is far from perfect, which is why some people are concerned with fixing peer review.

The History of Peer Review

Academic publishing has been the main way of sharing research findings since the 17th century. Over 350 years, some traditions have developed in academic publishing. One of these critical traditions is the need for peer review.

Peer review is a quality check for academic research. It is also an objective way of evaluating research. It was intended as a way to make a fair decision about the quality of academic research that is submitted to scholarly journals. Peer review makes it possible for any scientist to publish good work.

Problems with Peer Review

Peer review is supposed to be a mark of quality but this system is flawed. Some scientists have worked together to have their work published using fake peer review. The peer review process is a necessary but time-consuming one. Reviewers are not usually paid. This can make it hard for an editor to find a reviewer.

There are more than two million articles published in a year. If reviewers were paid, it would cost publishers £1.9 billion. Most reviewers are unpaid and often review papers in their free time. In addition, there are often delays in getting the reports submitted on time. These delays add up. For economics authors, it used to take 11 months to publish a paper. Now it is taking almost 30 months.

Presently, experienced reviewers have more work than they can handle. At the same time, young researchers struggle to become better peer reviewers. Making the process easier would make it possible to increase the number of reviewers. A formal system of training in how to conduct peer review would be helpful.

Another way to reduce the burden of peer review is to use artificial intelligence (AI). Elsevier has EVISE, an AI that helps their publishers. EVISE can

- Link a paper to software that detects plagiarism
- Suggest reviewers
- Automatically prepare messages among the authors of the paper and the editorial team
- Send reminders to reviewers
- Remove unresponsive reviewers and invite new ones
- Send decision letters to authors
- Send thank you letters to reviewers.

Future of Peer Review

The peer review process needs to be changed. Some scientists suggest switching to a public post-publication peer review. Posting your work in a repository and allowing those who read your work to comment on it is one way to get feedback on the quality of your research. Servers like arXiv build communities of researchers who share their data and offer critique.

Transparent peer review is another option. *Nature Communications* experimented with this recently. They let authors choose if they wanted to participate in this initiative. They published the final article along with the reviewers' comments and the authors' responses. About 60% of authors agreed to be part of the transparent peer review process. Relying on transparent peer review did not slow

publication down. *Nature Communications* will be using this method in the future.

Scientists often delay sharing their data before publishing. This was because once your data was available in the public domain, it would not be accepted by journals. This culture is slowly changing. Encouraging scientists to share all their data can be very useful especially in an epidemic or other crisis. During the Zika outbreak, publishers had to inform researchers that they would not be penalized for sharing their information before they were ready to publish their papers.

Sharing complete data sets should also help with reproducibility. About 65-90% of biomedical research is not reproducible and there are many reasons for this. Making all the data available and sharing the complete methods used should help to address this problem. Encouraging readers of articles to give feedback is one way to get a more robust review for each paper. Moreover, making sure that researchers get credit for sharing their complete data or code should also help with reproducibility and post-publication peer review.

Fixing Peer Review

The peer review process is too important to be left as is. Academic research needs peer review but how we do it must change. There are already ideas about fixing peer review. Academic publishing houses need to get more reviewers. There needs to be a formal training so that young researchers can join the reviewer pool. They can also use AI to make the job of reviewing easier. Transparent peer review and post-publication review also have their merits. Improving peer review can help ensure that the quality of published work is always increasing.

Category

1. Publishing Research
2. Understanding Reviews

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