

# Who'd be a referee?

How many papers does the typical researcher review in a year? How long do they take? And why do they do it? For the answers, read on.

Anyone who has ever refereed a football match will know that it is a thankless task. No one agrees with your decisions, everyone questions your parentage and you never end up on the winning side. Refereeing for scientific journals is similar in that your decisions and judgment (but not your parentage) will be questioned and that your decisions will sometimes influence peoples' careers. The principle differences are that you have more time to make decisions and your identity is usually a secret. However, neither activity — football nor scientific publishing — could survive without its referees.

A recent report on peer review prepared for the Publishing Research Consortium, *Peer review in scholarly journals*<sup>1</sup>, makes interesting reading. The report, which was based on a survey of 3,040 academics, concludes that there is overwhelming support for peer review. For example, 93% of respondents disagreed with the statement that peer review was unnecessary, and 85% agreed that peer review greatly helps scientific communication.

For authors waiting for decisions from journals, or reviewers feeling guilty about reports not yet written, there are some revealing numbers. The average review takes about 8.6 hours (with a median of about 5 hours) and is completed within 3–4 weeks, although there are significant differences between the four broad subject areas covered by the survey: in the physical sciences and engineering, for instance, the average (mean) is 10.4 hours, compared with 6.3 for clinical researchers. Of course, on top of this, many researchers spend considerable time reviewing grant applications for funding agencies, which can be equally onerous and possibly even more important than reviewing papers.

Respondents had reviewed an average of eight papers in the previous year, but a small number had reported on considerably

more papers, with 44% of reviewers being responsible for 79% of all reviews. The main reasons for reviewing were being part of the academic community, being able to improve papers and seeing new work ahead of publication. Incentives most likely to encourage researchers to review papers were a free subscription to the journal, some form of acknowledgement in the journal, and payment in kind (such as waiving colour charges), and there was only limited support for payment for reviewers. *Nature Nanotechnology* does not (yet) have a formal system for acknowledging referees, although our policy of sending all the reports on a manuscript to all the referees (there are usually three) after a decision has been made seems to be appreciated.

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However, although almost two-thirds of respondents said they were satisfied with the current system of peer review, there was also support for change. At present most journals use 'single-blind' peer review — that is, the referees know who the authors are but the authors don't know the identity of the referees. 'Double-blind' peer review — in which the referees review the paper without knowing who the authors are — emerged as the most popular approach, being preferred by 56% of respondents, followed by single-blind peer review (25%), and the 'open' approach in which no one's identity is concealed (13%). However, respondents acknowledged that there are practical problems with double-blind peer review — the obvious one being that an expert in the field could guess the identity of the authors — and the few studies of the double-blind approach that have been carried

out in medical journals did not find that it led to significant advantages. It is generally agreed, however, that this approach removes various biases against female authors. In a recent editorial<sup>2</sup>, *Nature* outlined the reasons why journals from Nature Publishing Group (including *Nature Nanotechnology*) would not be changing to double-blind in the foreseeable future, prompting a flood of comments in reply<sup>3</sup>.

Of course the peer-review process has been a subject of discussion in university tea rooms for decades, and although it has not fundamentally changed as a result of advances in electronic communications, the whole publishing landscape is being affected, notably in the form of the 'open-access' movement. Broadly speaking, this involves researchers posting the accepted versions of their papers on recognized websites from which they can be downloaded by anyone free of charge.

Important questions remain about what constitutes the accepted version of a paper and about the delay between publication in a journal and posting on the relevant open-access website, but the open-access movement is gathering momentum courtesy of the US National Institutes of Health and the Wellcome Trust in the UK (two of the world's biggest funders of biomedical research) and, most recently, the faculty of arts and sciences at Harvard<sup>4</sup>. For a fee, some publishers (but not Nature Publishing Group) are willing to make a paper open access, but authors of such papers would certainly be justified in asking to have the fees waived in return for refereeing.

## References

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3. [blogs.nature.com/peer-to-peer/2008/02/working\\_doubleblind.html#comments](http://blogs.nature.com/peer-to-peer/2008/02/working_doubleblind.html#comments)
4. *Nature* **451**, 879 (2008).