Peer Review: Time for a Change?

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Source: BioScience, 56(9) : 712-713

Published By: American Institute of Biological Sciences

URL: https://doi.org/10.1641/0006-3568(2006)56[712:PRTFAC]2.0.CO;2

Peer Review: Time for a Change?

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Single-blinded peer review, as usually practiced by ecological journals, protects the identity of the reviewers but not of the authors. Several studies have reported that this system is susceptible to bias (Wenneras and Wold 1997, Link 1998, Bordage and Caelleigh 2001, Wagner et al. 2003). Two alternative peer-review systems, which proponents claim are less susceptible to bias, are being used increasingly in biomedical and some other journals: the double-blinded process (information about both the author and the reviewer is concealed) and the double-unmasked process (information on both the author and the reviewer is revealed). So far, ecological journals have paid little attention to these alternative peer-review systems. What do we know about them? And what do ecologists and evolutionary biologists think about peer review?

The purpose of the single-blinded process is to improve the chances that reviewers will offer unrestricted and independent opinions on manuscripts. Author information is made available to reviewers to provide background and context, and may help in the detection of possible conflicts of interest concerning, for example, financial, professional, or personal relationships between the author and reviewer. If any conflict of interest involves an invited reviewer, he or she should decline the review or, at least, inform the editor about possible bias in the review report.

In contrast, the double-blinded process conceals information about the author to reduce the risk of reviewer bias. This may be a benefit because more, or more famous, author names and affiliations appear to boost the chances that a paper will be cited (Leimu and Koricheva 2005) or published. In the case of a research proposal, prominent author names and affiliations appear to increase the likelihood that the project will be funded (Wenneras and Wold 1997). Similarly, the double-blinded process avoids negative name bias, by which the famous may suffer undue attacks from envious anonymous reviewers who may use the opportunity to assail them.

Double unmasking reveals information about both authors and reviewers, which is thought to reduce the incidence of bad or unhelpful reviews. However, unmasking may also lead to overly diplomatic discretion by reviewers: They may curb their criticisms because they fear reprisal on their own manuscripts.

Both alternative peer-review systems, the double-blinded and the double-unmasked, were tested experimentally in the late 1990s (see the special issue on peer review in the *Journal of the American Medical Association,* vol. 280, no. 3). Although the new systems were considered fairer than the single-blinded process, it appeared that the quality of the review reports did not differ much between any of the peer-review systems. The double-blinded approach on one occasion was found to improve the performance of the reviewers (Wagner et al. 2003). Rejection of a manuscript was less likely in the double-blinded process than in the double-unmasked one. Furthermore, the identity of most reviewers was concealed successfully, but between 26 and 33 percent of the authors' identities were guessed correctly because of self referencing, clues in the text, or the smallness of the research field.

After circulating a pilot questionnaire at the British Ecological Society meeting in Hertfordshire in 2005, I sent a questionnaire on peer review to two large, well-known e-mail discussion groups for ecologists and evolutionary biologists, ECOLOG-L and EVOLDIR. This questionnaire had five closed questions (White et al. 2005) on peer review and five identity questions. The questions on peer review were

- Do you think that the current peer review system is unbiased? (author identity shown to reviewers, reviewer identity not shown to authors, single blinding) (yes/no)
- Do you think that this system should be improved? (yes/no)
- What do you think of the following alternatives:
  - Both authors' and reviewers' identities are confidential (double blinding) (worse, no change, better)
  - Both authors' and reviewers' identities are known (double unmasking) (worse, no change, better)
- Which system would you prefer? (single blinding, double blinding, double unmasking)

I also asked for the respondent's current position (MSc, PhD, postdoc, [associate] professor, other), number of publications in peer-reviewed journals (0–5, 6–10, 11–20, > 20), gender (male/female), age, and country of affiliation.

A total of 386 persons, between 23 and 73 years old and from 38 countries, responded. The majority had a position as a professor or associate professor (32.1 percent), followed by postdoctoral researcher (31.8 percent), PhD student (23.5 percent), other (8.6 percent) and MSc student (4.0 percent). The most common number of publications was 0 to 5 (31.9 percent), though significant numbers of respondents had 6 to 10 (21.1 percent), 11 to 20 (20.0 percent), or more

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than 20 publications (27.0 percent). The gender split was 68.9 percent male, 31.1 percent female. I assume that these percentages are roughly representative of the wider academic community.

The majority of respondents (82 percent) considered the current single-blinded system biased, and 95 percent answered that the system should be improved. Most (84 percent) considered the double-blinded process better than the single blinded (no change: 11 percent; worse: 5 percent), while 53 percent judged double unmasking worse than the single-blind approach (no change: 13 percent, better: 34 percent). The majority (73 percent) preferred the double-blinded process; 21 percent, double unmasking; and only 6 percent, single-blinding. Interestingly, this clear preference for the double-blinded system existed across all groups, regardless of age, gender, academic position, and number of publications. Support for the current single-blinded system was low overall, but was highest for the older researchers and those with more publications (increases from 1 to 17 percent and from 3 to 13 percent with age and number of publications, respectively; $\chi^2 = 7.715$, degree of freedom [df] = 3, $p = 0.002$; $\chi^2 = 14.063$, df = 4, $p = 0.007$; Kruskal-Wallis tests).

The results from the questionnaire are striking: The 386 scientists who replied show hardly any support for the peer-review system currently used most (single blinding), and they show a clear preference for the double-blinded system. Furthermore, there is evidence that the alternative peer-review systems are at least no worse than the single-blinded approach. Shouldn't these results motivate ecological journals to consider adopting a double-blinded peer-review system, as several biomedical journals are already doing? At the least, ecological journals should initiate a discussion with their audience about the peer-review system they use. Perhaps they will also find that it is time for a change.

Acknowledgments

I thank all those who responded to my questionnaire; Remko Duursma, Coen Elemans, Jasja Dekker, and the people from the Forest Ecology and Forest Management Group, Wageningen University, for fruitful discussions; and EVOLDIR and ECOLOG-L for posting the questionnaire.

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