News:

PNAS review policy... by numbers

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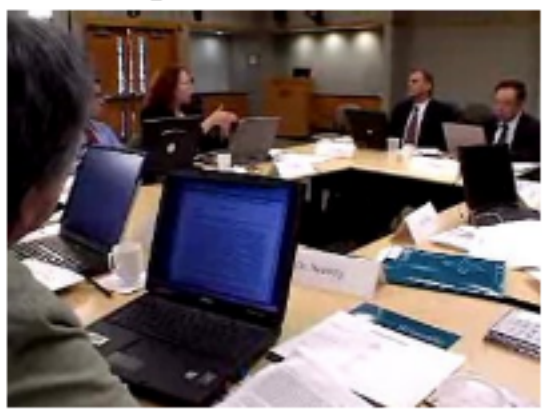
Some in the research community grouse about how members of the National Academy of Sciences (NAS) can hand pick reviewers and essentially fast track the publication of their papers or papers written by select non-academy members in the high-impact *Proceedings of the National Academy of Sciences of the United States of America* (*PNAS*). But a citation analysis published yesterday (1st December) in the *Public Library of Science ONE* (*PLoS ONE*) suggests that the practice may be doing just what it's meant to do -- facilitate the publication of highly innovative research that might not make it into such a visible journal otherwise.



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"The alternative publication tracks that *PNAS* provides seem to do a good job in giving NAS members more autonomy and letting them publish really groundbreaking, highly-cited, high-impact work while letting some lower quality work get in," Harvard evolutionary biologist David Rand, lead author on the *PLoS ONE* paper, told *The Scientist*. "You lower the average quality, but you also pick up the really great stuff. That's a pretty good model."

Research papers appear in *PNAS* via one of three tracks -- manuscripts can be submitted directly to the journal, with the *PNAS* editorial board overseeing a traditional peer review process, NAS members can submit their own papers after procuring at least two reviews from referees of their choosing, or NAS members can submit manuscripts on behalf of non-members, marshalling the paper through peer review themselves and submitting reviews along with the manuscript. These different tracks result in the publication of "Direct submissions," "Contributed," or "Communicated" papers, respectively.

Rand and his coauthor, Harvard evolutionary biologist Thomas Pfeiffer (neither of whom are NAS members), reviewed citation data for more than 2600 *PNAS* papers published between June 2004 and April 2005. They found that overall, "Contributed" papers -- those written by NAS members -- tend to be cited less than "Direct submissions" by researchers who do not belong to the academy and whose papers go through standard, blinded peer review. But (and this is an interesting but) though "Direct submissions" tend to be cited more on average, they are less likely to be "truly exceptional papers," Rand and Pfeiffer write.

They compared the 10% most cited "Contributed" papers to the 10% most cited "Direct submissions," and found that the most cited of the former receive significantly more citations than the most cited of the latter. "Contributed" papers seem to be less influential on average, they reason, but the best of them tend to have more of an impact on their fields than do the best papers from non-NAS members.

"Communicated" papers, the researchers found, received roughly equivalent levels of citation as did papers submitted directly to the journal. But again, the top 10% of "Communicated" papers were cited more than the top cited directly submitted papers.

Rand and Pfieffer chalk up this average citation discrepancy to the different ways in which papers arriving at *PNAS*'s doorstep via the three submission tracks are scrutinized by reviewers. Contributed papers are reviewed by referees selected by the author, and this, Rand and Pfeiffer write, may "soften the challenges of the peer review process" for NAS member authors who may be writing out of their area of expertise. This may result in the publication of lower quality "Contributed" papers relative to "Direct submissions," they suggest, but it may also help NAS member-written papers that challenge scientific norms or tweak long-held axioms get into the pages of *PNAS* faster.

"The benefit of facilitating publication of extremely high-impact Contributed papers could be argued to out-weigh the potential cost of allowing more low quality papers to also be published," they write.

One factor that Rand and Pfeiffer did not account for, however, is whether or not the *PNAS* papers they analyzed were or were not press released by the journal. "The effect of press releases, and popular press coverage more generally, on citation counts is an open question which deserves further study," they write.

Recently, *PNAS* announced that the journal will be doing away with the option for NAS members to communicate papers for non-members starting July 1, 2010. Announcement of this decision coincidentally occurred as *PNAS* was fielding criticism for publishing a controversial -- and "Communicated" -- paper suggesting that butterflies are the evolutionary result of a long-ago mating between worm-like and winged ancestors.

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