

PEER REVIEW

AND THE ACCEPTANCE OF NEW SCIENTIFIC IDEAS

Discussion paper from a Working Party on equipping the public with an understanding of peer review
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The public should be equipped to ask tougher questions about the status of scientific research claims

Every year, hundreds of thousands of papers about the findings of scientific research are assessed for competence, significance and originality by scientists publishing work in the same field. Many weak or flawed papers are rejected. Others are criticised, improved and published. This process of ‘peer review’ is a much more reliable guide to whether findings are plausible than who conducted the work or how it was funded. But scientists have rarely explained that peer review is used to decide which research is worthy of publication - and very few people outside the science world know to ask whether research has been peer reviewed.

That needs to change, according to a discussion paper from a Working Party¹, convened by the Sense About Science trust, on how to help the public to evaluate confusing and contradictory claims about scientific research. While it is almost impossible for people outside a scientific field to assess research, they can ask more searching questions about how other experts have judged the work. Scientists, commentators and educators who are committed to seeing public discussion informed by higher-quality research should use every opportunity to explain peer review so that more people can use that knowledge to question and weigh up different claims.

The discussion paper from the Working Party includes a Guide to Peer Review, which explains the process and discusses issues including anonymity, editorial bias, ‘maverick’ science, commercial research and conflicts of interest.

Tracey Brown, the Director of Sense About Science and a member of the Working Party, said:

“The paper is proposing a simple cultural shift towards wider knowledge of the peer-review process, so that *all* people with an interest in scientific issues start asking tough questions about the information that is put before them: questions like, ‘have these research claims been peer reviewed?’ ‘has the study been published in a recognised scientific journal?’ and ‘how many other research papers have reached the same conclusions?’.

“It is well-recognised that it’s easy to generate publicity, concern or political attention on the back of unsubstantiated research claims. When the Working Party reviewed the contentious claims of recent years, relating to the MMR vaccine, mobile phones, GM crops and transgenic animals among others, it was surprised that so little had been said about how scientific peers had assessed the claims and, in some cases, why the research had not been shown to those peers before the results were made public. That information is crucial for non-experts weighing up the claims and people should know to ask for it.

“As most scientists will tell you, peer review is by no means the last word on a piece of research, but a culture of explaining and asking about peer review all along the line – from radio phone-ins to ministerial briefings – will put a lot more pressure on people bringing research claims to the public to explain exactly what the status of the work is.”

NOTES

1. The Working Party was convened in November 2002 by Sense About Science and chaired by Professor Sir Brian Heap CBE FRS. The other members are: Dr Derek Bell, Professor Colin Blakemore FRS, Ms Tracey Brown, Dr Peter Cotgreave, Lord Drayson, Ms Fiona Fox, Mr Tony Gilland, Professor Stevan Harnad, Professor Sir Peter Lachmann FRS, Sir John Maddox FRS, Professor Peter Main and Professor Alan Malcolm.
2. The discussion paper is collated and presented by Tracey Brown, published by Sense About Science and designed by Institute of Physics Publishing. The cost of printing has been met by the Medical Research Council on behalf of all of the Research Councils. Publication of this paper has been endorsed by a sub-group of the Board of Trustees of Sense About Science. Sense About Science is a registered charity. One of its objectives is to promote public knowledge of how scientific research is conducted. See Appendix 6 of the full discussion paper.
3. The full paper will be available to download from www.senseaboutscience.org from publication date and also in hard copy.

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