

Consensus and Controversy

Balancing the news value of dispute with understanding what makes robust scientific theories and assessments

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News media often aim to achieve “balance” in their coverage of scientific issues of public interest by pitching individual scientists against each other in an adversarial debate. Individuals participating in such a debate are usually selected according to whether they represent sufficiently alternative or contrasting views on the topic of debate, but not necessarily by whether their views have withstood the scrutiny of their peers in the scientific peer-review process. It is assumed that a contrasting array of individual viewpoints best allows consumers of news media to establish their own opinion regarding scientific truth.

This may be contrasted with the approach taken by the international science community for some science areas of high public and political interest, using climate change as example. The Intergovernmental Panel on Climate Change is an international expert panel that undertakes regular such comprehensive assessments of the scientific knowledge on climate change. It uses internationally leading experts and aims to balance views by using researchers from different parts of the world and with different areas of specialty and interests. The reports it produces are based on thousands of scientific papers that have been published in the international peer-reviewed literature, and they undergo multiple, transparent and open peer review by the global expert community before publication. These assessments incorporate and describe the uncertainty arising from divergent points of view or contradictory scientific findings or explanations, provided that the diverging scientific results have all withstood appropriate scientific scrutiny. A similar approach has been used for ozone depletion, and has been suggested for the issue of genetic modification.

Both the adversarial and the comprehensive assessment approach can, in principle, ensure a balanced information of the public about scientific issues.

However, a significant public misinformation can result if the news media pitch an individual expert who presents the findings of such comprehensive assessment panels against another individual who argues against them out of his or her individual point of view. The public will generally assume that the scientific truth lies somewhere in the middle between those two individuals, whereas it is much more likely to lie with the weight of peer-reviewed and comprehensive scientific assessment, which would have considered already the range of alternative and opposing views prior to reaching its conclusions.

As a consequence, I argue that in areas of limited public understanding of the underlying science, and of high political interest and debate, it is particularly important that news media explain the process and benefits of scientific peer-review as compared to individual opinion, and that journalists themselves need to understand the scientific issues and processes that distinguish peer-reviewed conclusions from personal points of view and comprehensive assessments from individual pieces of research. Such an understanding is vital to select appropriate individuals to present challenging and complex scientific issues which inevitably have to condense thousands of individual research results and their interpretations.

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SCANZ Conference September 2005 Panel Discussion "Journalism: Are science and news an uncivil union?"

Abstract - Karen Cronin, School of Management, Victoria University of Wellington
'Are Scientists from Mars and Journalists from Venus?'

The relationship between Science and News can be viewed as problematic. Scientists are frequently frustrated with News Journalism, seeing it as trivialising, fickle, constantly in need of stimulation and obsessed with calamity and conflict. Journalists are often frustrated with Scientists, seeing them as absorbed with obscure detail, jargonistic, technocratic, unable to make up their minds or commit to a position.

Solutions are advanced: if Scientists could only understand the demands of the news room and engage in plain English they would appreciate how the media works and have more success. If Journalists would only get some basic knowledge in science, or read the right journals, they would understand the issues and present them accurately.

Scientists may well be from Mars and Journalists from Venus. In his famous guide on communication published in 1992, author John Gray offers his unique brand of advice to men and women in relationships. Martians, according to Gray, value power, competency, efficiency and achievement. They are interested in objects and things, rather than people and relationships. They fantasize about powerful cars, faster computers, gadgets, gizmos and new, more powerful technology. In this polemical universe, Gray goes on to describe Venusians as valuing communication and feelings. On Venus, relationships are more important than work and technology. Men go into their caves (read 'labs') when they have a problems, whereas women just want to talk.

My personal view is that back on planet Earth, stereotypes don't always apply and things are a lot more subtle - and interesting.

Conflict models, based on simplistic descriptions of other people, can obscure the real dynamics in relationships and the complexity of real world issues.

In discussions about science and technology, such as the GE debate, such positions can be unhelpful. In my presentation I will outline findings from a recent study for the Ministry of Research Science and Technology (MORST) on dialogue about biotechnology, exploring the issues raised by GM scientists and community interest groups and in particular their experience of working with the news media. Ultimately, both scientists and journalists are citizens on planet Earth - along with the rest of the community. I will comment on the conflict model in news reporting and ask if there is potential for our media institutions to engage more effectively in complex public debates and perform as the '4th estate' in civil society, where science and technology are increasingly exposed to public scrutiny.

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Abstract Alan Samson
Is Kipling right?

East is east and west is west and never the twain shall meet. When Kipling wrote his famous refrain about an heroic clash of opposites he wasn't talking at all about science, but courage - as evidenced in the battlefield meeting of Indian and English soldiers in the era of the Raj. But the words have evolved into a catch-all

clause meaning the meeting of near-impossibly opposite viewpoints or stances. Do they fairly sum-up the relationship between science and journalism?

Many commentators today are quick to criticise standards of science journalism in New Zealand. Perhaps they are right to do so. But, before making any such judgment, it seems only fair to attempt some sort of analysis of the workings and pressures faced by the journalist, and of the interface clash where science and journalism come together. Each profession is subject to tensions and expectations that the other is not privy to. And each is subject to its own rigorous rules of ethics or morality. These factors need to be at least understood before passing judgment.

In my presentation, I will offer extended definitions of both science and journalism as a springboard for criticism, leading in to a brief discussion of some of the most contentious mis-reportings of science to have occurred in New Zealand in recent years. But I shall also turn the spotlight onto science, raising the issue of a not-always-flattering public perception that might be taken account of. Is the media to blame? Finally - to demonstrate my complete lack of bias! I will offer some commonsense advice to journalists, which might also serve as useful criteria for outside criticism.

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Janine Young

Biotechnology is a fast-moving area of science with diverse ethical and societal implications that many teachers find difficult to teach. Having quality support materials helps greatly in the teaching of biotechnology, as even the science can be daunting

Biotechnology Online (www.biotechnologyonline.gov.au) was originally developed by the Australian government agency Biotechnology Australia in 2001 as a curriculum-based resource aimed at year 9-10 (15-16 year-old) students. In addition to providing clear and accurate information, it enabled schools to supplement their educational resources with a wide range of case studies, hands-on activities and experiments, interactive games, student worksheets and teacher notes.

It was also supported by a professional development program and a book that contains all the work sheets and a copy of the site on CD that can be loaded onto several school computers. Since then *Biotechnology Online* has been well-used, but by 2004 it had reached its use-by date and needed revitalising.

As *Biotechnology Online* is curriculum-based, its redevelopment involved working closely with science teachers across the country to ensure the new version suited their needs and current curricula. A series of teacher focus groups highlighted a number of issues and teachers specifically requested more information about human and environmental applications of biotechnology research and examples of current, relevant Australian research and news (as they are very keen to be able to put the information in *Biotechnology Online* in context).

These considerations strongly guided the redevelopment, and the new version of the resource contains:

- four new interactive games about gene transcription and translation, protein synthesis and avian influenza

- new information sections about emerging infectious diseases (avian flu and SARS), the human genome project and careers in biotechnology
- expanded sections on stem cells, cloning, the human genome project, xenotransplantation and environmental biotechnology applications
- an expanded glossary
- five new work sheets (with all others reviewed and expanded)
- addition of more video and audio clips and animations
- a brand new look and feel with improved navigation

Janine will not only discuss the new version of *Biotechnology Online*, but also the lessons learnt from the redevelopment process. These will necessarily be in the context of the Australian experience, but the lessons are also relevant to New Zealand.