

In praise of soft science

'Hard' scientists should stop looking down their noses at social scientists, and instead share methods that could help them address pressing societal problems.

It is the conventional wisdom in the biological and physical sciences, and within research agencies, that the social sciences are, well, 'soft', and lacking in methodological rigour. That's why it is arresting that the US National Science Foundation's prestigious Alan T. Waterman award for young scientists has gone this year to Dalton Conley, a sociologist at New York University (see page 1024).

Conley specializes in the detailed study of economic outcomes among underprivileged groups, and says he avoids research on attitudes because they can't be measured accurately. Research agencies in the United States and elsewhere need to support more social scientists like him, because their work can potentially make a valuable contribution to the study of important societal problems.

Take, for example, climate change and biodiversity loss, two global environmental problems for which human behaviour is a significant driver. Research on these issues tends to focus on the physical nature of the phenomena in question. Study of whatever underlies the behaviour itself is too often regarded as 'soft' science and dismissed as second-rate.

Or consider the relationship between biomedical research and public health. The United States has constructed a well-funded and carefully calibrated system to research and develop the best pharmaceuticals and medical equipment that modern science can provide. But what good is that if patients don't take their drugs correctly, or pharmacists routinely misread a doctor's handwriting? A 1999 US Institute of Medicine study found that medical errors — human errors — kill as many as 98,000 people every year, more than the number who die from traffic accidents, breast cancer or HIV/AIDS. Shouldn't psychology and sociology be better harnessed to address this problem?

Even when social science is confident in its assertions, it often feels that it gets no respect from the outside world. Writing in the current

issue of the American Sociological Association magazine *Contexts*, for example, Harold Wilensky, a political scientist at the University of California, Berkeley, says that social scientists have identified specific, practical solutions for problems such as crime prevention and access to health care. But their advice is largely ignored by US policy-makers, Wilensky argues, adding that governments in northern Europe and Japan have a better track record of implementing social scientists' findings.

It can be argued, of course, that social scientists have brought much of this upon themselves. A lot of their work is politically contentious by its very nature, and the spread of what can be loosely termed 'relativism' has reduced their clout. With so many gifted amateurs working their territory, social scientists have a tougher time asserting the unique nature of their expertise than do astrophysicists, for example. Few of us know much about the dynamics of the cosmos, but we all know plenty about human nature — or at least we think we do.

So the onus falls on the social scientists themselves to hone their methods and ensure that they are ready to stand up to external scrutiny. The National Science Foundation has recognized the need to strengthen methodology in the social sciences. Since the terrorist attacks of 11 September 2001, it has also, to its credit, devoted considerable effort to increasing the resources available to its directorate of social, behavioural and economic sciences.

On the campuses, meanwhile, 'hard' scientists need to get over their disdain for their 'soft' colleagues. The study of society can't just be left to poets and politicians. As the almost boundless complexity of physical and biological systems becomes increasingly apparent, along with the pressing need to better understand patterns of human behaviour, now is as good a time as any for a rapprochement between the two wings of the scientific academy. ■

Not-so-deep impact

Research assessment rests too heavily on the inflated status of the impact factor.

Every year at the end of June, scientific publishers' eyes turn to Philadelphia, where the Institute for Scientific Information (ISI) releases a snippet of data that they crave: the impact factor of each journal. In due course, bureaucrats in research agencies will roll the impact figures into their performance indicators, and those scientists who worry about such things will quietly note which journal's number wins them the most brownie points.

Attempts to quantify the quality of science are always fraught with difficulty, and the journal impact factors are among the few

numbers to persist. The result is an overemphasis of what is really a limited metric.

To obtain the latest impact factors, which were released last week, the ISI number-crunchers added the total number of citations from all the monitored journals during 2004 to items in the journal of interest that were published in 2002 and 2003. They then divided that total by the number of 'citable items' — loosely, papers and review articles — that were published in the journal during those same two years.

The impact factor is taken by some administrators as a measure of the typical citation rate for the journal. But for many journals, it isn't 'typical' at all. *Nature's* latest impact factor is 32.2, an increase on last year and a high number that we're proud of, but it's one that merits a closer look.

For example, we have analysed the citations of individual papers