

An Exercise in Scientific Integrity: Scientific Consensus in Policy and the Media

I. The Importance of Scientific Consensus

Science is a collaborative effort; over time, the ideas of many scientists are synthesized, modified, clarified, and sometimes discarded altogether as our understanding improves. Thus, science can be viewed as a method of reaching a consensus about the ways in which the world works.

1. From what you know about the scientific method, the peer review process, and the development of scientific theories, what does it mean when a scientific consensus emerges in a given field?

The conclusions have been reached with valid data and methods, have been repeated, can be applied in related subjects, are predictive, do not contradict any observations, fit all the available data, etc.

2. When science can have an impact on issues such as public health, environmental sustainability, and areas in which people have ethical or religious concerns (e.g., evolution, cloning), how should the existence of a scientific consensus affect the development of policy?

Science is only one part of policy making, but it should remain an independent one. Independent scientific evidence and ideas should be used to create public policy that protects and sustains public health and the environment.

3. How should policy makers react to a scientific consensus that is politically or economically inconvenient?

Policy makers should not attempt to interfere with science they do not like for non-scientific reasons. They should acknowledge the science and justify their reasons for not using it in crafting public policy.

II. Skepticism Toward Scientific Consensus

There are two unfortunate obstacles to an accurate public understanding of scientific consensus and its importance. First is a tendency to exaggerate the number of times scientific consensus has been overturned. This comes, in part, from the excitement of scientists, the public, and the media to new and untested ideas. When these attention-grabbing ideas prove mistaken or exaggerated during subsequent scientific review, this can give the impression that science has “failed.” There are certainly times when scientific consensus has been overturned, but such instances are rare.

4. How should policy makers react to cutting-edge science? Are there situations where policy decisions should be made before a scientific consensus has been reached, or should governments wait until the science is very clear?

Policy makers should react cautiously to cutting-edge science, as the results have not been confirmed through testing. In cases where there may be significant consequences for public health, politicians should consider emergency measures.

5. How should policy makers handle scientific uncertainty? When a scientific consensus has been reached but uncertainty remains about specific aspects of the science, are those uncertainties a legitimate excuse for policy action or inaction?

Scientific uncertainty should not be exaggerated to justify policy action or inaction, but if there is a high degree of uncertainty, policy makers may want to wait for further testing.

6. Studies have shown that the vast majority of Americans get their knowledge about science from the media. Do the media do a good job of distinguishing between developing science and widely accepted science? Do they explain the uncertainties well?

Supported opinion, but the responses will typically be no. The media must be careful not to give false hope or cause undue panic with reports on developing science. They should do a better job of making the difference between a consensus and a new discovery clear.

III. False “Balance” in Reporting

The second barrier to public understanding of scientific consensus is skepticism caused by “outlier” scientific opinions. There will always be a handful of scientists who do not accept the consensus and continue to advocate earlier ideas that have been superseded or new ideas that have not been thoroughly tested. These dissident ideas can be disproportionately magnified by policy groups, special interests, and the media. The media is particularly notorious within the scientific community for misguidedly trying to bring “balance” to news stories by giving non-scientists or scientists with fringe opinions the same amount of air time as scientists with mainstream opinions.

Consider the following two studies:

- Science historian Naomi Oreskes looked at 928 peer-reviewed articles published between 1993 and 2003 and found that none of them disagreed explicitly with the idea of anthropogenic (human-caused) global warming.
- A study of 636 articles about climate change appearing in four major newspapers (the *Los Angeles Times*, *New York Times*, *Wall Street Journal*, and *Washington Post*) between 1988 and 2002 found that 53 percent gave “roughly equal attention” to anthropogenic global warming and exclusively natural fluctuations as causes of increased temperatures. This study also noted that the number of falsely “balanced” news stories increased as the subject of global warming became increasingly politicized, and that these stories tended to rely on “a small group of influential spokespeople and scientists who emerged in the news to refute [anthropogenic global warming].”

7. Do you think the journalistic standard of “balance” is equivalent to “objectivity,” or that it forces journalists into a “he said, she said” mentality even when one side of a debate is supported by a preponderance of evidence? If you read an article that had only one side represented, would you assume the journalist is biased or that there may be only one credible side to the story?

Supported opinion, but most responses will typically suggest that journalists create false balance.

8. Do you feel scientists with non-consensus opinions should be given representation in media coverage or public policy? If so, how much representation should they be given, and should there be any restrictions on how their ideas are presented to the public?

The context of a non-mainstream scientist’s opinion should be made clear if a strong scientific consensus exists. In cases where scientists with non-consensus opinions have an affiliation that represents a clear conflict of interest, certain restrictions may be appropriate.