

# THE SCIENTIST IN SOCIETY

## KEY CONCEPTS

**Deficit Model:** the view that public mistrust of, resistance to, or skepticism about science is chiefly due to a lack of public information and understanding—which can be significantly and substantively corrected by providing more, and more accurate, scientific education and information.

**Inductive Risk:** the chance that scientists take, when making a decision about the sufficiency of evidence required to make versus fail to make a particular scientific claim, of being wrong in that professional judgment of evidential sufficiency.

**Value-Free Ideal (VFI):** the idea that—at least when it is being practiced as it ought to be—science makes knowledge and other products absent from distorting forces such as social interests and political influence.

## TEXTBOOKS & REPORTS

- *Responsible Conduct of Research* (Shamoo & Resnik 2015, 3<sup>rd</sup> ed)
- *Reproducibility and Replicability in Science* (The National Academies Press 2019; free at [nap.edu](http://nap.edu))

## ASSOCIATED ARTICLES

- Douglas' (2000) "Inductive Risk and Values in Science" *Philos Sci* 67: 559–579.
- Wenner's (2017) "The Social Value of Knowledge and the Responsiveness Requirement for International Research" *Bioethics* 31(2): 97–104.
- Kovaka's (2019) "Climate change denial and beliefs about science" *Synthese* 198: 2355–2374.

## CASES IN THE NEWS

- Andrew Wakefield, *The Lancet*, the MMR Vaccine, and Autism—see Brian Deer (2011) writing for *The British Medical Journal*



## DISCUSSION QUESTIONS

1. What relationship(s) does scientific work in your discipline, domain, or field have with society?
2. What responsibilities come with receiving public funds in order to conduct scientific research?
3. What is the relationship between scientific authority and public accountability?
4. Competition for resources, position, and prestige in research can encourage scientists to generate positive results, and to publicize the publication of their results as quickly and widely as possible. At the same time, public demands for increased reproducibility and reliability of scientific results are also quite prevalent. How can researchers reconcile these two conflicting demands: that of "publish or perish" with "please produce more, more quickly, and more reliable, scientific predictions for society"?
5. Do you endorse the VFI?

## THE SOCIAL CONTEXT

As WWII was ending, President Roosevelt requested a report from Vannevar Bush, then-Director of the Office of Scientific Research and Development (OSRD).

Bush's OSRD housed and supervised The Manhattan Project, and Roosevelt wished to know: what the US could do to bring the scientific knowledge produced by the war effort to the public; how to produce results of similarly startling efficacy in medicine; how the government could aid future scientific research in both the public and private sectors; and, finally, how to develop and support America's young, scientific talent—in order to provide a secure and continuing pipeline of promising scientific careers and results. In 1945, Bush released *Science: The Endless Frontier*, and the US model for federally funding science was born.

## FINE PRINT

In 1992–3, the National Academy of Sciences (NAS) published a pair of reports on *Responsible Science* (Vol. 1–2), and those reports ushered in an era of ethical oversight centered around the concept of the Responsible Conduct of Research (RCR) at federally-funded American research institutions across the nation. By 2009, the National Institutes of Health (NIH) had mandated that "all trainees, fellows, participants, and scholars receiving support through any NIH training, career development award (individual or institutional), research education grant, and dissertation research grant must receive instruction in responsible conduct of research" (NOT-OD-10-019). The National Science Foundation (NSF) recommends—though does not require—something similar. Both agencies suggest that satisfactory RCR instruction tends to cover: research misconduct; conflict of interest; human subjects research; animal subjects research; collaboration and interdisciplinarity; data acquisition and management; authorship, peer review, and publication; mentoring and being mentored; and the relationship between science and society.

This handout introduces the topic of **science and society**.