Roles for Social Values in Environmental Health Research

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The Big Picture

- When discussing ethics and science/technology, there can be a temptation to focus on two sets of issues:
  - **Research integrity**: data management, authorship, mentoring, animal welfare, informed consent for human subjects
  - **Applications of science in society**: not causing harm, distributing benefits and burdens in a just way, protecting environmental health

- But there are other issues to consider as well…

The Big Picture

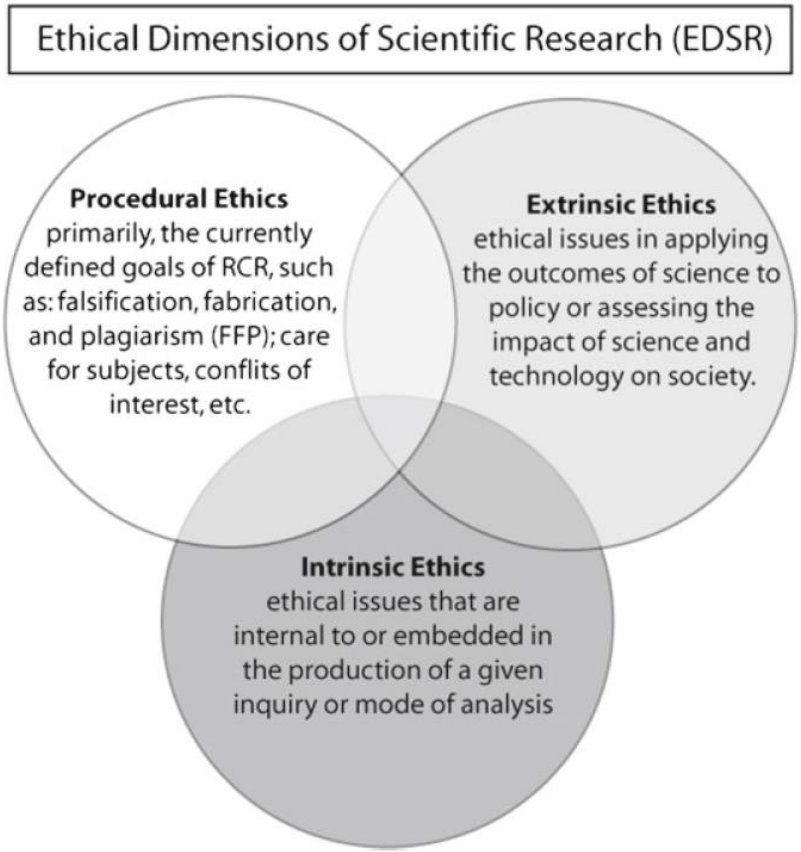


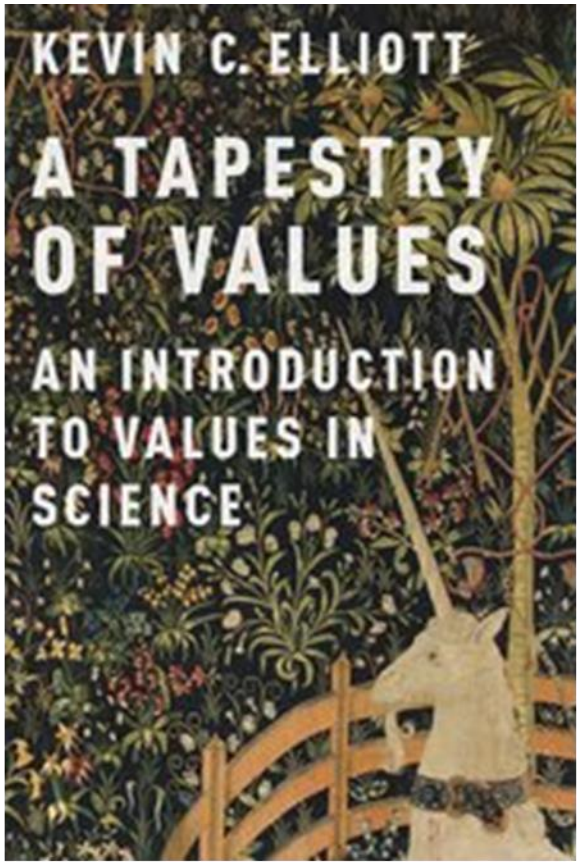
Fig. 1 Diagram of the Ethical Dimensions of Scientific Research model of a broader conception of "research ethics"

From Nancy Tuana, "Leading with Ethics, Aiming for Policy: New Opportunities for Philosophy of Science," *Synthese* 177 (2010): 471-492.

The Big Picture

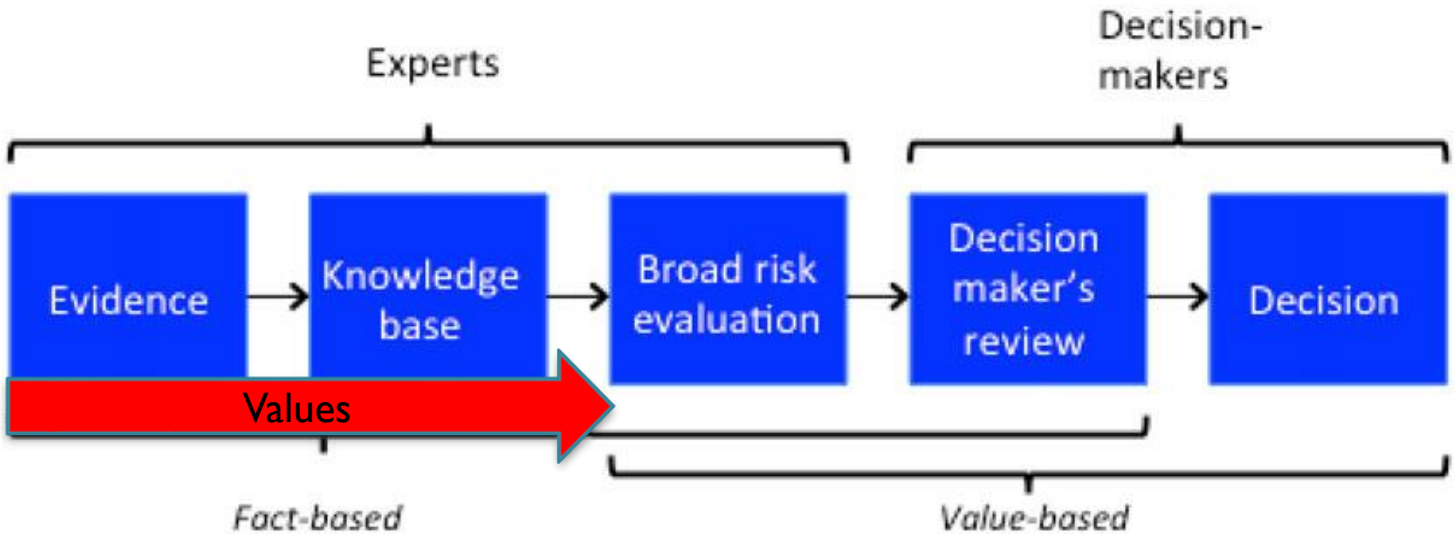
- I'd like to focus on an "intrinsic" ethical issue, namely, the importance of recognizing and managing value influences in research

- **My main claim**: rather than trying to handle values through a "value-free ideal," we need to develop an effective "value-management ideal"



Oxford University Press, 2017

Watch out for "Upstream values"



Outline

- Explanation of the two ideals
- Argument against the value-free ideal
- Sketch of what's involved in employing the value-management ideal
  - Communicating about value judgments
  - Making value judgments responsibly

Explanation of the Two Ideals

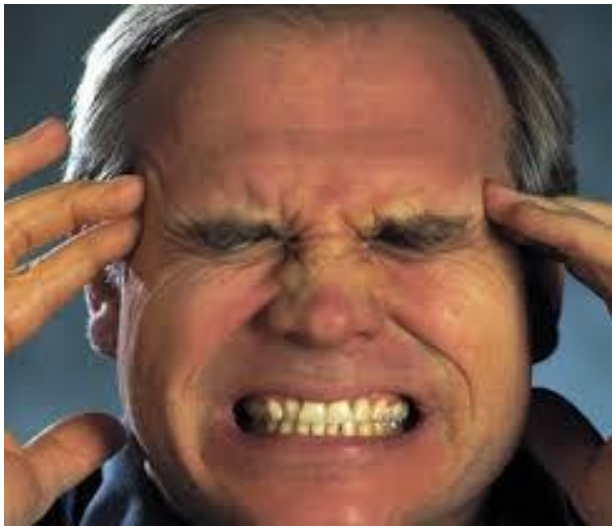
Terminology

- **Value judgments** (choices that are not settled by logic and the available evidence)
  - What topics to study
  - What questions to ask about those topics
  - What the aims of inquiry should be
  - How to interpret ambiguous evidence
  - What standards of evidence to demand
  - How to frame and describe results

- **Values** (things that we regard as desirable and that can explicitly or implicitly influence these judgments)
  - My focus here: economic growth, sustainability, public health, animal welfare, equal opportunity, justice,…

Responding to Value Judgments

- Two different approaches:
  - Value-free ideal: we should try to exclude values from core aspects of scientific reasoning, like assessing hypotheses
  - Value-management ideal: rather than trying to exclude values from scientific reasoning, we should develop ways to handle them as responsibly as possible



Argument against the Value-Free Ideal

Problems with the Value-Free Ideal

- It's typically not feasible to do environmental health research without making value judgments in ways that support some values over others:
  - Choosing standards of evidence
  - Making assumptions, modeling choices, and interpretations
  - Choosing terminology, categories, and framing
- So, the value-free ideal can prevent needed reflection and communication about the values that explicitly or implicitly influence this research

Standards of Evidence

- James Hansen, 1988: "Global warming…is already happening now"
  - Alan Robock: "What bothers a lot of us is that we have a scientist telling Congress things we are reluctant to say ourselves"
  - But Hansen says he "weighed the costs of being wrong versus the costs of not talking" and concluded it was time to "stop waffling, and say that the evidence is pretty strong that the greenhouse effect is here"

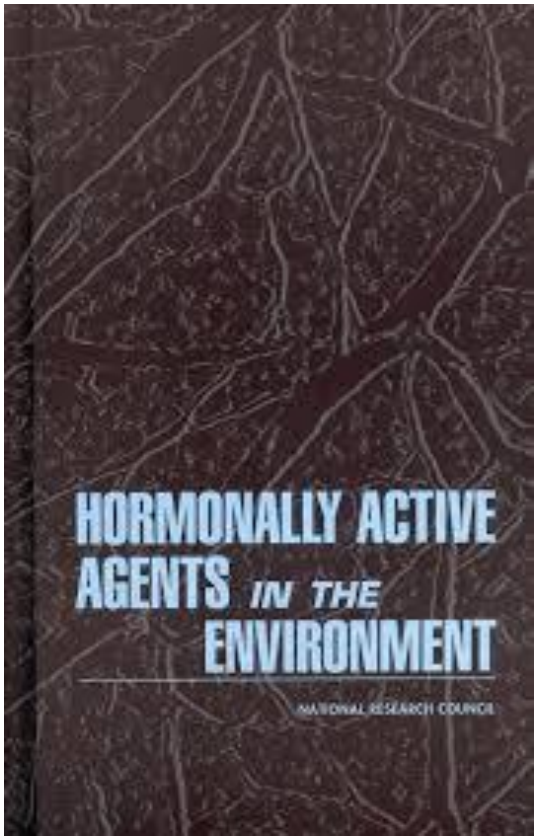
Assumptions and Modeling Choices

- Risk assessment
  - Estimating exposures
  - Extrapolation from high to low doses, from animals to humans, from less sensitive to more sensitive individuals
  - Weighing differing studies (e.g., in vitro, animal, epidemiological)
  - Choosing methods and models (trading off accuracy versus speed)
  - Choosing what to measure (death, tumors, organ weight, enzyme and hormone levels)

The Social Benefits of Expedited Risk Assessments
Carl F. Cranor[1] *Risk Analysis, Vol. 15, No. 3, 1995*

Terminology, Categories, Framing

- Endocrine disruptors vs. hormonally active agents
- Alien, exotic, invasive, non-native species vs. superabundant or harmful species
- Genetic modification vs genetic engineering and gene editing
- Greenhouse effect vs global warming vs. climate change



Rules of the name

To avoid offense, WHO says no people, places, food, or animals in new disease names

By **Kai Kupferschmidt** **SCIENCE** sciencemag.org 15 MAY 2015 • VOL 348 ISSUE 6236

Overview of the Problem

- Scientists working on environmental-health topics frequently have to make judgments that will end up serving some social values over others

- Therefore, trying to avoid thinking about values is likely to result in less thoughtful responses to these judgments

Sketch of an Alternative: The Value-Management Ideal

An Alternative Ideal

- Strive to **manage values well** in at least two ways:
  - Communicating openly about value judgments
  - Making value judgments responsibly

Value-Management Ideal

- **Communicating about values**:
  - Could be *explicit*: conflict-of-interest disclosures or acknowledgment of value-laden choices
  - Typically, it will be more *implicit*, providing information that allows others to identify value influences:
    - Publishing results
    - Open access to publications, data, materials, methods, models, computer codes
    - Registration of studies and results
    - Presenting ranges of possible results

Value-Management Ideal

- **Making value judgments responsibly**:
  - Appealing to epistemic principles and ethical principles
  - Applying these principles via *engagement*:
    - Formal and informal peer review by other scientists
    - Interdisciplinary research collaborations (including ELSI)
    - Community-engaged research
    - Multi-stakeholder institutions
    - Adversarial systems like "science courts"

Informing 21st-Century Risk Assessments with 21st-Century Science

Linda S. Birnbaum,[1] Thomas A. Burke,[2] and James J. Jones[3]

VOLUME 124 | NUMBER 4 | April 2016 · Environmental Health Perspectives

Institutionalizing Dissent: A Proposal for an Adversarial System of Pharmaceutical Research[1]

Justin Biddle

Kennedy Institute of Ethics Journal Vol. 23, No. 4, 325–353 © 2013 by The Johns Hopkins University Press

Ongoing Challenges

- Communicating explicitly about value judgments is difficult:
  - Scientists frequently don't recognize that they are making value judgments
  - When they do acknowledge roles for values in their work, it could generate unwarranted skepticism

Values in environmental research: Citizens' views of scientists who acknowledge values

Kevin C. Elliott[1]*, Aaron M. McCright[2], Summer Allen[3], Thomas Dietz[4]

PLOS ONE | https://doi.org/10.1371/journal.pone.0186049 October 25, 2017

Ongoing Challenges

- Communicating implicitly about value judgments is also difficult:
  - Providing access to data isn't very effective without the right infrastructure in place to make use of it
  - Calls for transparency must be implemented carefully in order to be fair and workable

The E.P.A. Says It Wants Research Transparency. Scientists See an Attack on Science.

By Lisa Friedman

March 26, 2018 The New York Times

Climate scientists face harassment, threats and fears of 'McCarthyist attacks'

Oliver Milman *in New York*

@olliemilman

Wed 22 Feb 2017 11.56 EST

US edition

The Guardian

Ongoing Challenges

- Making value judgments responsibly is also difficult:
  - There are typically disagreements over which epistemic and ethical principles are most compelling (e.g., how to interpret different studies or how to weigh public health against other considerations)
  - The outcomes of engagement efforts depend a great deal on who is involved and how the rules of engagement are structured

Conclusions

- A value-management ideal is preferable to a value-free ideal in environmental health research
- This will help facilitate greater reflection about the role of values in choices throughout scientific practice: standards of evidence, assumptions, models, interpretations, frames, terminology, and so on
- Developing an adequate value-management system will require some careful reflection about how to…
  - Communicate effectively about value judgments
  - Make value judgments responsibly

Thanks!

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An Alternative Ideal

(1) Values shouldn't cause one to violate clear scientific norms/expectations

- Don't falsify or fabricate data
- Don't use clearly inappropriate methods or statistical analyses
- Don't cherry pick data/evidence

- Admittedly, it's not always clear whether an activity is merely questionable or whether it violates clear norms

An Alternative ideal

(2) Try to make judgments that are socially responsible:

- Identify and reflect on the social impacts that crucial judgments might have
- In some cases, pass the judgments to others
- When feasible, acknowledge alternative options
- Weigh competing interests or concerns
- Minimize potential confusion or misunderstanding
- Minimize serious harms

- Admittedly, this is a lot of responsibility, but individual scientists don't have to do this alone...

An Alternative Ideal

(3) Facilitate transparency about crucial judgments:

- Conflict-of-interest disclosures
- Discussion of values, assumptions, and alternative interpretations
- Registries of studies and/or results
- Publication of results
- Data sharing
- Providing open access to materials, methods, models, and computer codes

Toward a New Era of Trust and Transparency in Clinical Trials FREE ONLINE FIRST

Kathy L. Hudson, PhD[1]; Michael S. Lauer, MD[1]; Francis S. Collins, MD, PhD[1]

JAMA The Journal of the American Medical Association

+AllTrials

An Alternative Ideal

(4) Promote critical engagement about these judgments:

- Peer review
- Replication attempts and meta-analyses
- Scrutiny by regulatory agencies and panels
- Interdisciplinary research collaborations (including ELSI)
- Critique of regulatory study guidelines
- Community-engaged research
- Community-led citizen science

Conclusion

- One element of social responsibility is to navigate value-laden areas of research with appropriate objectivity

- Two approaches:
  - Value-free ideal
  - Reflection, transparency and critical engagement

- I recommend the second approach, but we need ongoing reflection on how to make it work better…

Questions to Consider

- What forms of transparency and critical engagement are most important for maintaining objectivity?
- How should we handle the fact that some stakeholders (e.g., industry) are severely limited in pursuing transparency?
- What are some of the best ways to improve both transparency and critical engagement?
  - Is it helpful for scientists to try to explicitly acknowledge their values?
  - Are there ways to improve the role of regulatory agencies as a locus for critical engagement?
  - Are there better ways to engage critically with regulatory study guidelines?