When Science and Politics Collide

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My Personal Science Philosophy

If you are not an expert, it is best to accept what is considered mainstream in a scientific field.

Why?
R-E-S-P-E-C-T (Just a Little Bit)

• Scientists deserve respect
  – Spend years studying a subject
  – Should assume they are speaking honestly, even if we disagree

• But, scientists are being ignored or blatantly disrespected. Why?
  1. Media culture
  2. Political partisanship
  3. Easier to attack the messenger
  4. Internet
#1: The Media

• Media treats science like politics
  – Present “both sides” of the story
  – But science doesn’t work like that
  – Mainstream (“Consensus”) vs. Fringe

• Do fringe opinions deserve equal time?
  – HIV doesn’t cause AIDS
  – Moon landing was faked
  – Genetic modification is dangerous
  – Vaccines cause autism
Case Study: Vaccines and Autism

• Andrew Wakefield (1998): Vaccines linked to autism
  – No data for 13 years
  – Declared a fraud (2011)

• Media reported “both sides”

• Candidates Obama, Clinton, and McCain all expressed concern over vaccines
Autism Quotes

“We’ve seen just a skyrocketing autism rate. Some people are suspicious that it’s connected to the vaccines. This person included.”


“It’s indisputable that [autism] is on the rise among children...and there’s strong evidence that indicates it’s got to do with a preservative in vaccines.”


Source: Washington Post
Media Fails to Understand Terminology

- Science terminology and colloquial language differ
  - Theories, hypotheses, certainty, significance
- Claim: No global warming from 1995-2009
  - Not true. There was no statistically significant warming
  - With 2010 data added, the warming was significant

Source: Skeptical Science
Media Over-Reports Environmental, Epidemiological Studies

- Typical storyline
  - Yesterday: Chemical X is everywhere!
  - Today: Chemical X causes cancer!
  - Tomorrow: Chemical X blocks dementia!

- Media fails to communicate:
  - Different studies have different strengths
    - Case-control vs. Cohort vs. Randomized Clinical Trial
  - Epidemiological/environmental studies are tentative
  - Confuses the public
  - Over-reporting led to “precautionary principle”

- BPA is current boogeyman (Jon Entine debunks)

- Remember: Biological effect ≠ Relevant effect
#2: Political Partisanship

- Scientists are often treated like politicians.
  - “That scientist is a shill for Big ___”
  - This is insulting:
    - Implies scientific fraud!
    - Research doesn’t make scientists rich
    - Scientists have interest in proving everybody else wrong

- Science is politically neutral
  - Must separate science from science policy
Partisan Mentality is Pervasive

- Either with us or against us

- Example: Global warming
  - No compromise on science policy
  - So the science itself is rejected
  - Negative reaction to Bjorn Lomborg

- Example: False media reports of “conservative war on science”
  - Plenty of progressive positions are anti-science
  - E.g., anti-nuclear, anti-GM, anti-vaccine, anti-merit-based teaching
Case Study: Genetic Modification

- Overfishing is big problem
  - Aquaculture of GM salmon is a scientifically sound solution
  - Politics trumps science!
    - Bipartisan opposition
    - Mostly from Pacific NW
    - AquaBounty is from Boston

- More anti-GM politics
  - “Science Café” talk on GMOs
  - Protecting the environment was more important than feeding people
More Examples of Partisanship

- Science policy often breaks down along partisan lines
- Over-simplified (but you’ll see my point)

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<thead>
<tr>
<th></th>
<th>Conservatives</th>
<th>Progressives</th>
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<tbody>
<tr>
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<td>Pollution is bad!</td>
<td>Pollution is bad!</td>
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<tr>
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<td>Yes</td>
<td>No</td>
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<tr>
<td>Cap-and-Trade</td>
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<tr>
<td>Energy</td>
<td>Let’s make more!</td>
<td>Let’s use less!</td>
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Political Activists in Science

• Activists distort science
  – Trick is determining who is scientific and who is ideological

• Should Greenpeace write UN climate change reports?
  – Science 2.0 (Another great site)

• Should Greenpeace play any serious role at all after engaging in ecoterrorism?
#3: Easier to Attack the Messenger

- ‘Shocking levels’ of personal vilification

- I wrote a piece calling for a ban on raw milk
  - “Grist” article attacked me personally
  - “Supposedly credible scientist”
  - What would Col. Jessep say?

- Not even possible to have honest debate about fertilizer
#4: Internet

- Internet is blessing and curse
- Confirmation bias
  - Read or watch only those with whom we already agree
- Information is easy to find
  - Includes bad information
  - “Wikiexperts”
  - Rejection of real experts
All That Makes Me Feel Like This...
Can We Ever Disagree with Scientists?

• YES! Of course.

• Accept the science, but room for debate on policy
  – If scientists endorse specific policies, they often are no longer speaking as scientists
  – Other factors play role in policy:
    • Economics, ethics, etc.

• E.g., global warming is real, but we can debate policy
  – Cap-and-trade
  – Carbon tax
  – “Buying out” coal
  – Adapting to climate change
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  - Not ideology-based science
THANK YOU!