WHAT DO WE KNOW ABOUT PUBLIC OPINION?

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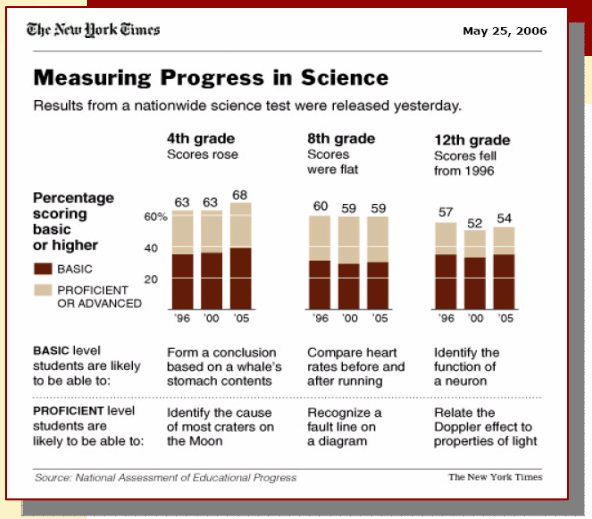
Public Participation in Nanotechnology Workshop
June 2006

THIS TALK … AN OVERVIEW

- A macro approach to public participation: Public engagement vs. public outreach
- Why public outreach is critically important
  - The audience: Communicating with a miserly public
  - The message: The interplay of scientists and journalists
- Some lessons for public outreach

PUBLIC OUTREACH FOCUSED ON LITERACY?



The New York Times — May 25, 2006

Measuring Progress in Science

Results from a nationwide science test were released yesterday.

	4th grade Scores rose	8th grade Scores were flat	12th grade Scores fell from 1996
Percentage scoring basic or higher (BASIC / PROFICIENT OR ADVANCED)	63 63 68	60 59 59	57 52 54
	'96 '00 '05	'96 '00 '05	'96 '00 '05
BASIC level students are likely to be able to:	Form a conclusion based on a whale's stomach contents	Compare heart rates before and after running	Identify the function of a neuron
PROFICIENT level students are likely to be able to:	Identify the cause of most craters on the Moon	Recognize a fault line on a diagram	Relate the Doppler effect to properties of light

Source: National Assessment of Educational Progress — The New York Times

- Most engagement and outreach efforts aimed at informing the public and building nanotech literacy
- Examples
  - Various science education initiatives
  - Renaissance of public engagement efforts (deliberative polling, consensus conferences, technology forums, etc.)
  - etc.
- All of these efforts are important, but many of them have not had a broad impact …

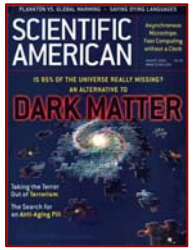
A MORE FINE-GRAINED OVERVIEW: OUTREACH VS. ENGAGEMENT

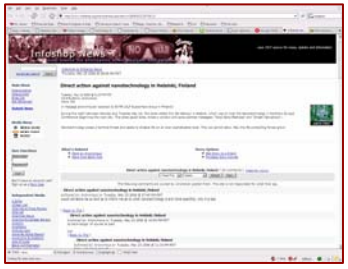
High Information

Low Involvement

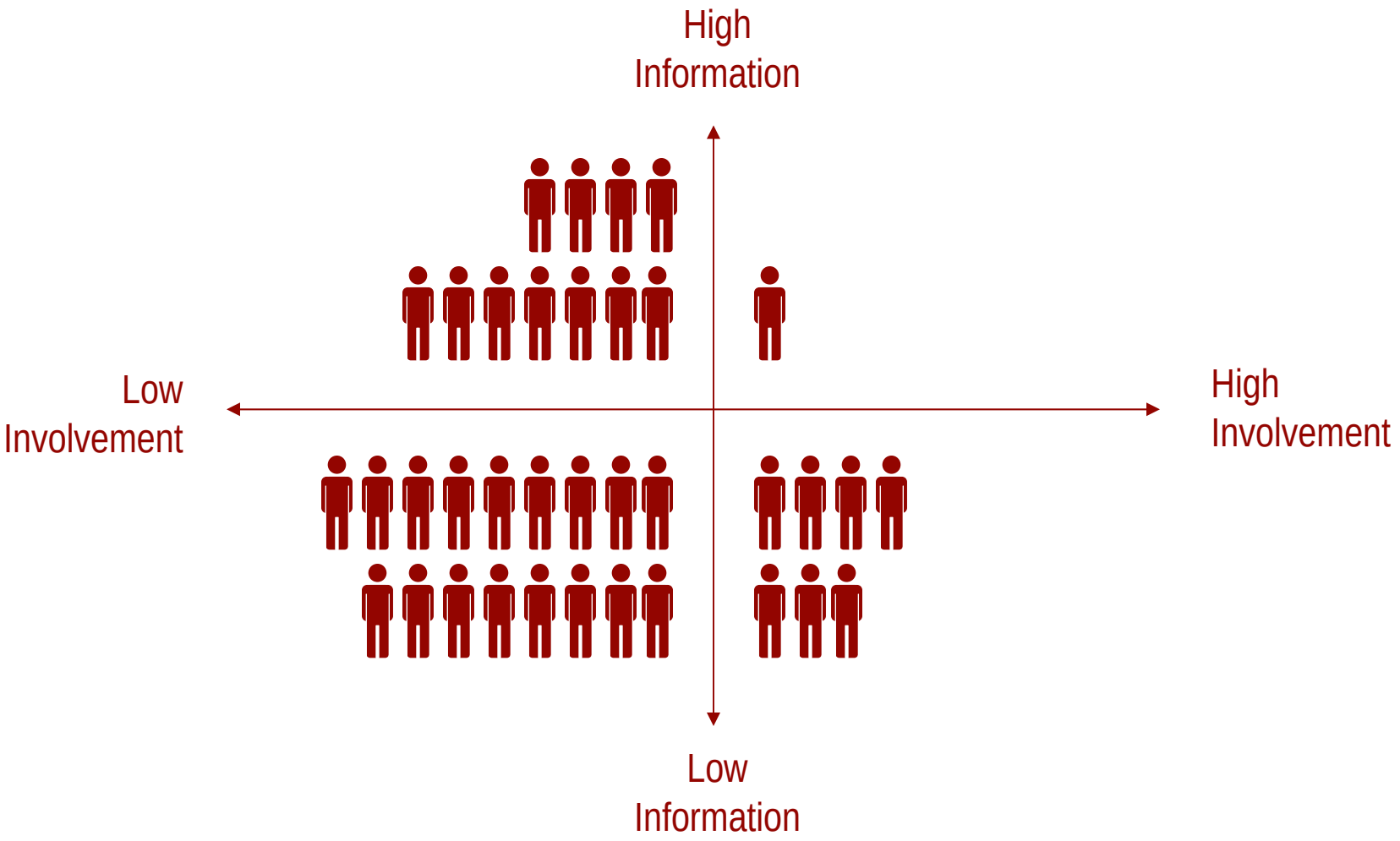
High Involvement

Low Information





A MORE FINE-GRAINED OVERVIEW: OUTREACH VS. ENGAGEMENT



ATTITUDES ABOUT NANOTECH

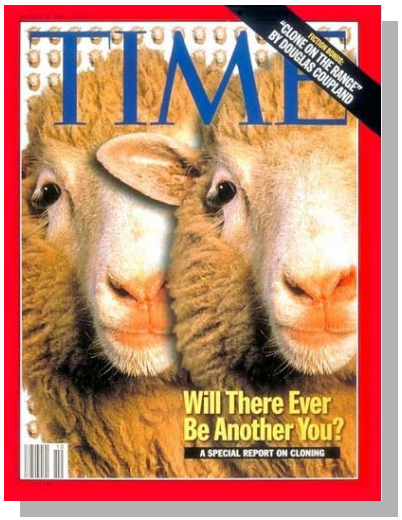
So how do uninformed and uninvolved publics form attitudes about nanotech?

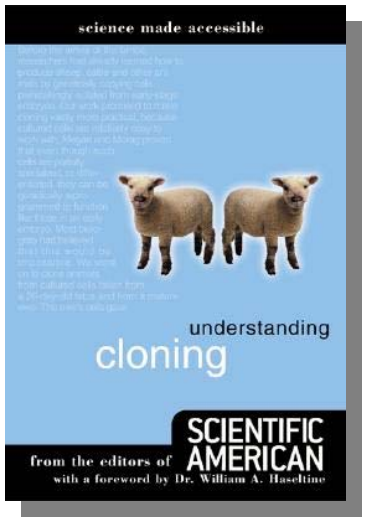
THE COGNITIVE MISER MODEL

- People know very little about most issues, including scientific issues
- "Low information rationality"
  - It does not make sense for most people to develop in-depth understanding of issues
  - As a result, they form attitudes on nanotech using heuristics or shortcuts, such as predispositions, opinion climates, or media frames

FRAMING SCIENCE

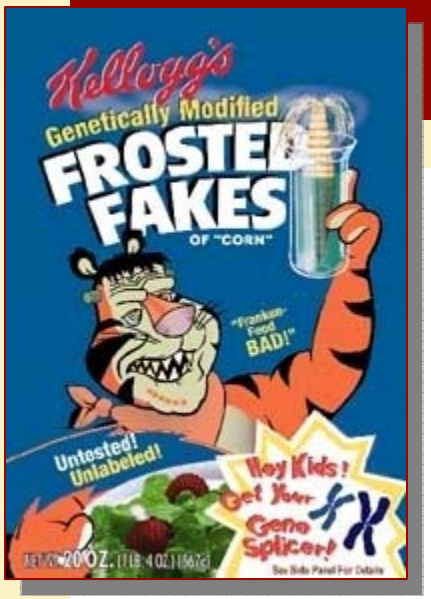
climate change





cloning

HOW DO FRAMES WORK?



- Frames have little to do with information
- Rather: Frames differ in how they present issues
  - Frankenfood vs. GMOs
  - Gun control vs. gun safety
  - etc.
- As a result: Frames influence which schema in people's heads are activated when they process information about scientific issues
- Or to put it differently, the same information – framed differently – can evoke very different interpretive schema in people's minds

FRAMING SCIENCE POLICY: *LANGUAGE OF THE 21ST CENTURY* (F. LUNTZ)

NEVER SAY:	INSTEAD SAY:
9. Drilling for oil	**Exploring for energy**

It's the picture people paint in their minds, the [illegible] an old-fashioned oilrig that gushes up black goop vs. 21st Century technology and innovation that provides us the ability to heat our homes and drive our cars. When you talk about energy, use words like *"responsible"* and *"balanced"* and always address your concern for the environment.

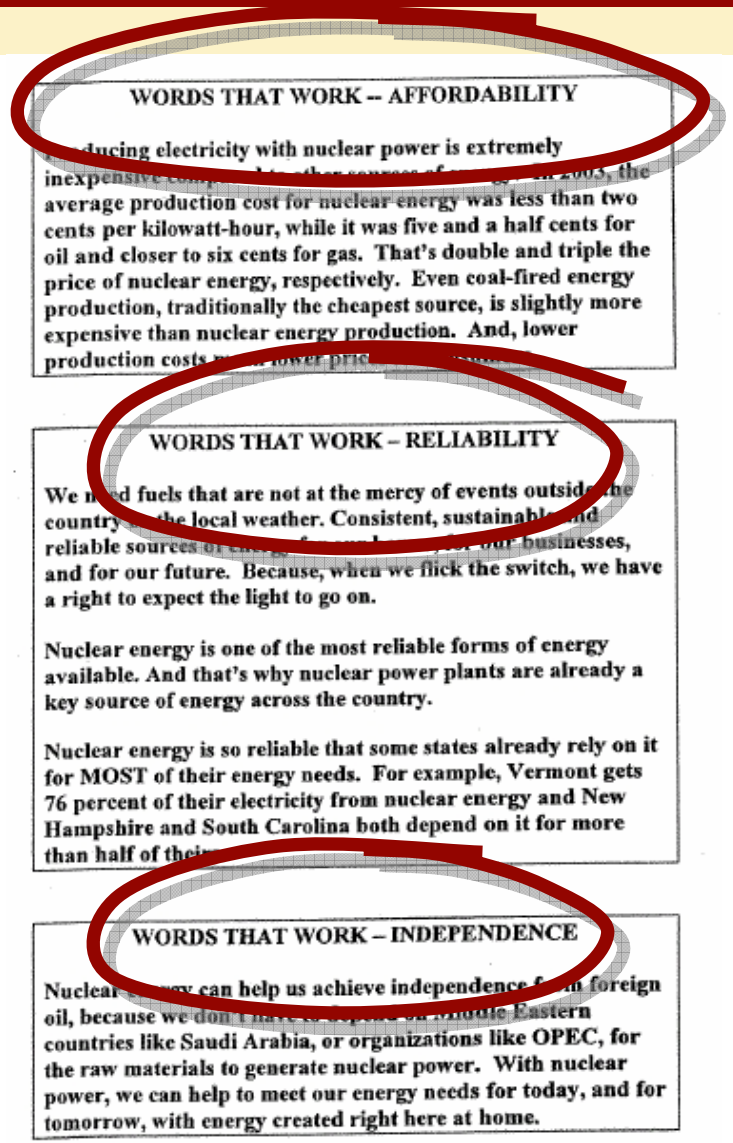
NEVER SAY:	INSTEAD SAY:
10. Tort Reform	***Lawsuit Abuse Reform***

The term *"tort"* has very little meaning to the average American, and at best reminds one of a French pastry. ***"Lawsuit Abuse"*** is something most Americans understand and resent. If you really want to make your case, add the word ***"frivolous."***

NEVER SAY:	INSTEAD SAY:
11. Trial Lawyer	***Personal Injury Lawyer***

It is hard to distrust a trial lawyer because we see them portrayed so favorably on L.A. Law and Law & Order. But personal injury lawyers, also known as ambulance chasers, remind people of those annoying, harassing commercials we see at 1:00 am cajoling us to sue someone. If you want to get the full bang for the buck, call them ***"predatory personal injury lawyers."***

FRAMING SCIENCE: *LANGUAGE OF THE 21ST CENTURY* (F. LUNTZ)



WORDS THAT WORK -- AFFORDABILITY

ducing electricity with nuclear power is extremely inexpensive [illegible] 2003, the average production cost for nuclear energy was less than two cents per kilowatt-hour, while it was five and a half cents for oil and closer to six cents for gas. That's double and triple the price of nuclear energy, respectively. Even coal-fired energy production, traditionally the cheapest source, is slightly more expensive than nuclear energy production. And, lower production costs [illegible]

WORDS THAT WORK – RELIABILITY

We [illegible]ed fuels that are not at the mercy of events outside the country [illegible] the local weather. Consistent, sustainable and reliable sources of [illegible] our businesses, and for our future. Because, when we flick the switch, we have a right to expect the light to go on.

Nuclear energy is one of the most reliable forms of energy available. And that's why nuclear power plants are already a key source of energy across the country.

Nuclear energy is so reliable that some states already rely on it for MOST of their energy needs. For example, Vermont gets 76 percent of their electricity from nuclear energy and New Hampshire and South Carolina both depend on it for more than half of their [illegible]

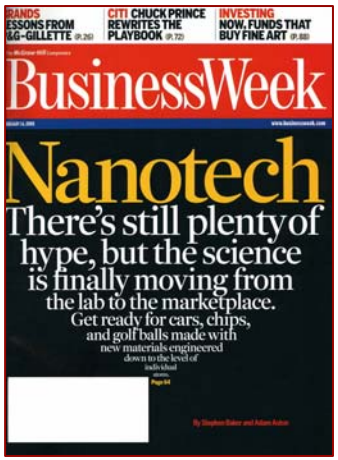
WORDS THAT WORK – INDEPENDENCE

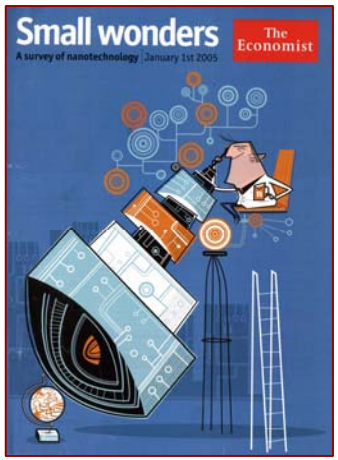
Nuclear [illegible]gy can help us achieve independence from foreign oil, because we don't have to depend on Middle Eastern countries like Saudi Arabia, or organizations like OPEC, for the raw materials to generate nuclear power. With nuclear power, we can help to meet our energy needs for today, and for tomorrow, with energy created right here at home.

LESSONS FOR NANO OUTREACH

First, emerging frames for nanotech …

HOW WILL NANOTECH BE COVERED?





- At this point in the U.S.: Mostly positive frames, based on economic and scientific potential of nanotech
- Frames, rather than literacy, currently influence nano attitudes (e.g., Scheufele & Lewenstein, 2005)
- But coverage beginning to change …

REFRAMING NANO: SCIENCE

Nanotech workers are lab rats in experiment with no controls

Rick Weiss
Washington Post
April 9, 2006

RENO, Nev. - To tour the gleaming offices of Altair Nanotechnologies Inc. is to see why the U.S. Commerce Department calls nanotech "the next industrial revolution" -- a revolution not of smelters and smokestacks but of precision-engineered carbon "buckyballs" one-ten-thousandth the size of the head of a pin and microscopic nanospheres that can pack the power of a car battery in a napkin-thin wafer.
…

REFRAMING NANO: ECONOMIC ASPECTS

THE NEW YORK TIMES, WEDNESDAY, MAY 17, 2006

ASSESSING RISKS

Technology's Future: A Look at the Dark Side

existing ones. Those plants currently supply just over 20 percent of the nation's electricity with operating costs far below fossil fuel plants.

Advocates for renewed investment in nuclear power say that new plant designs could reduce or eliminate many of the meltdown and contamination risks associated with current plants. Critics say the industry is still too riddled with bad management and lax regulation to allow new plants to be built.

"The driver of a car has a much bigger impact on safety than whether it's a Volvo or a Yugo," said David Lochbaum, director of the nuclear safety project for the Union of Concerned Scientists.

But some nuclear critics are reconsidering their positions based on the conclusion that of all the proven power-generating technologies, only nuclear power is ready to deliver large amounts of electricity without creating greenhouse gases that contribute to climate change.

"I see climate change as being so disastrous that increased nuclear energy may be the way to go," Mr. Perrow said.

The new designs still do not address concerns about the accumulation of nuclear waste that will be radioactive for centuries unless a new way of dealing with it is devised. And nuclear plants — and the technology to support them — strike some critics as inviting targets for terrorists. Still, many energy experts see nuclear power as the best bridge to an energy future based on renewable sources like solar power.

The ambivalence in green policy debates about nuclear energy also runs through talk about biotechnology, especially when it comes to genetic engineering. Arguments that

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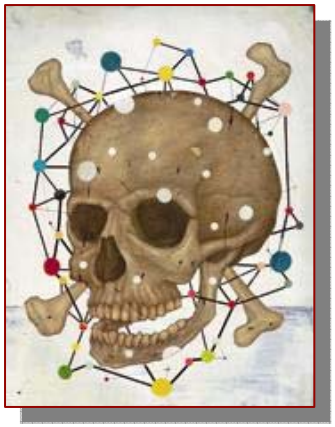
REFRAMING NANO: SOME SPECULATIVE PREDICTIONS

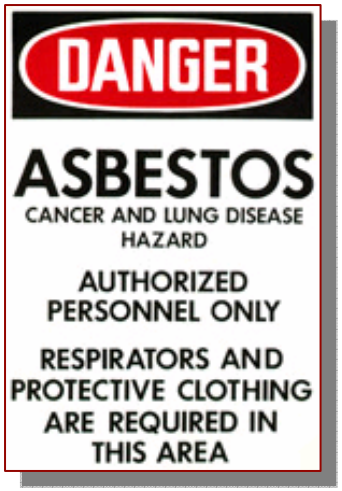


Science:

Philip E. Ross (2006). "Tiny Toxins?" *Technology Review,* May/June.

Entertainment:

"Path of Destruction" (Sci Fi TV movie, 2005)



News:

"Nanotech as the asbestos of tomorrow" (swissinfo.com, February 15, 2006)

LESSONS FOR NANO OUTREACH

An agenda for successful public outreach …

PUBLIC OUTREACH AS PROACTIVE PARTICIPATION IN PUBLIC DISCOURSE

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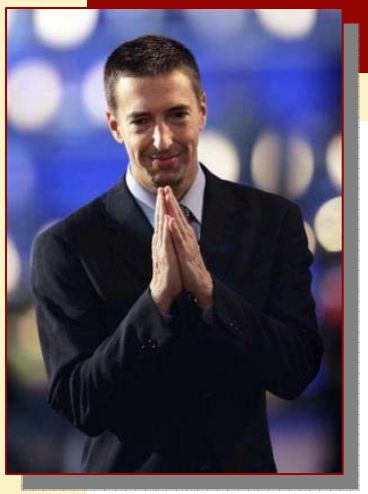
- Public outreach not a matter of promoting pro-science views among the general public or of simply improving literacy

+

- Public outreach involves effective communication with all stakeholders (scientists, citizens, policy makers, etc.)
  - Currently, public debate about issues, such as stem cell research, dominated by interest groups and other partisan players
  - Scientific views not heard

CHALLENGES FOR PUBLIC OUTREACH

(Including ideas outlined by Nisbet, 2006)

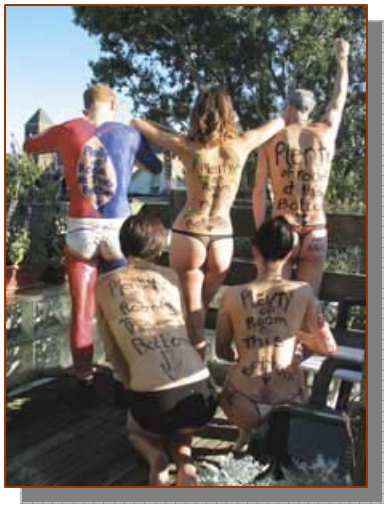


- We need to get beyond thinking about science news just as the release of a new study
- Scientific issues are increasingly becoming policy issue and people form attitudes accordingly

- Specific challenges to scientists …
  - Public outreach needs to address issues outside the realm of science
  - Scientists need to work *with* journalists

CHALLENGES FOR PUBLIC OUTREACH

(Including ideas outlined by Nisbet, 2006)



- Specific challenges to journalists …
  - Increasing the specialization and improving the training of journalists
  - How do we make policy and ELSI issues newsworthy in a non-partisan way?
  - Rethinking what objectivity means in American journalism

FOR QUESTIONS, COMMENTS, ETC. …

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http://www.nanopublic.com