

Informed Public Perceptions of Nanotechnology and Trust in Government

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Jane Macoubrie

Senior Advisor, Project on Emerging Nanotechnologies
Woodrow Wilson Center for Scholars at the Smithsonian

jmacou@mac.com

919-744-1841

<http://www.wilsoncenter.org/index>

Discipline: Social Scientist in Communication Studies

Research areas:

- Group decision processes
- Best practices for citizen participation, deliberation
- Logics and argument reasoning leading to decisions

Why Include General Public in Decision Making?

- Expert and Citizen: Technology-Only Versus Social Impacts & Standards
- Need for National & International Processes
- Deficit Model vs. Participatory Learning
- Polarization versus Integration
- Venting—Teaching—Debate—Discussion—
Deliberation—Consensus Decision-Making

Nanotechnology 2004: 2 Studies

1. 1st National Survey of Public re Nanotechnology: 95% of 1500 respondents did not trust government or industry to effectively manage any risks, If “don’t know” is included as low trust.¹
2. Experimental Issue (informed) Group study²
 - Same level of low trust as study 1
 - Lowest trust in medical & general industrial applications
 - Demographic associated with lowest trust: College degree or higher
 - Basis of concerns: experiences from the past
 - BUT Positive, interested, even excited about nanotech
--”when are you having another class?”

¹Cobb & Macoubrie (2005), Journal of Nanoparticle Research 6. ²Macoubrie 2006, Public Understanding of Science 15.

Next Step: 2005 -- Present Study:

- ? Why such low trust in government & industry?
 - Social Representations, Sources, Reasons, Ideologies?
 - Affected by trust in regulatory agencies, political entities?
- ? What do people want, to increase trust?
- ? How are people learning about nanotechnology?

Also in 2005, trust and attitudes re 2 emerging application areas:

Nano/Bio convergence:

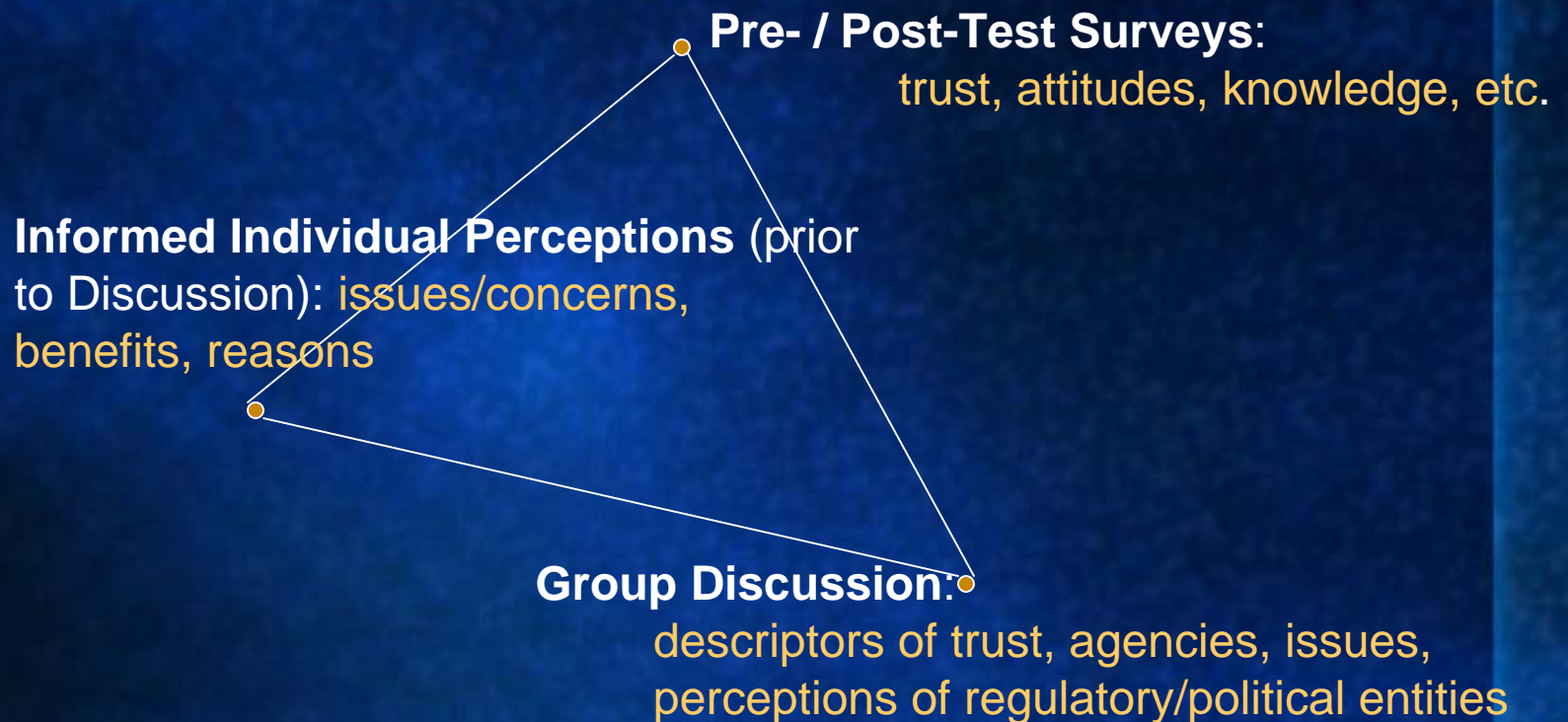
Biopharming, nano-level DNA manipulation of animal feed;

- Neutraceuticals, neuroceuticals, cognition enhancement
- artificial skin & limbs, organs, regenerated spinal cord, brain cells

Personal care & consumables:

- Moisturizers, hair re-growth products, cosmetics, hair conditioners, toothpaste
- Food: Ice cream, food packaging, food tracking, food animals, biopharming

Triangulated Data: Three Sources, Cross-Referenced



177 Representative participants

3 Regional locations

2005--Dallas, Spokane, Cleveland

2004--Raleigh-Durham, San Diego, St.Paul)

4 Conditions

1. Control: General introduction to nanotechnology
2. General medical & industrial applications
3. Nano & consumables--personal care products, food
4. Convergence of nanotechnology & biotechnology

Results 1:

Attitudes and Knowledge

Initial Knowledge

A lot	9
Some	16.9
A little	26
Nothing	54

Post-Test Attitudes (Pre-Test)

Quite positive	9.6	(7.9)
Mostly positive	40	(13.0)
Neutral	32	(37.9)
Mostly negative	10	(.6)
Quite negative	0	(0)
Don't know	3	(40.7)

Results 2: Where are People Learning About Nanotechnology?

If one source only

- 22% Public television & radio
- 20% Word of mouth -- another person

If two sources

- 27% Magazines
- 16% Word of mouth -- another person

Results 3: Interest in Nano Benefits

70% in 3 categories

- 31% Major medical advances
- 27% better consumer products
- 12% general progress: country, knowledge
 - 8% help environment
 - 6% better food, nutrition
 - 5% economy, jobs 4% effects on energy issues
 - 4% better electronics, computers
 - 3% benefit military personnel, forensics, security
 - 1% advance international welfare

Results 4:

Concerns About Nanotechnology:

51%--are testing, regulation,
true unknowns

- 13% “true unknowns”
- 13% regulation
- 13% human health risks
- 12% testing/research for safety
- 10% effect on environment
- 7% food, food chain effects
- 7% industry irresponsibility
- 6% privacy
- 6% military, world instability
- 5% playing God, messing with Mother Nature

Results 5:

Trust Levels After Learning

- Increased trust in EPA, OSHA, CDC, CPSC
- Before & after learning, **lowest trust** in Congress/White House-- Belief that politicians interfere with regulatory protection
- Decreased trust in FDA, USDA-- Food, medical examples, personal care products
- OSHA trust split-- Worker protection apparently also a concern

Restoring Public Trust: Requests of Government

- #1 recommendation--Testing to discover significant risks
- #2 recommendation--
Public engagement, information, input
“Do more of this” group study: #1 suggestion during discussion

Regulation Needs:

- Voluntary industry standards sufficient?
 - NO--55%
 - YES--11%
- Ban new nanotech products?
 - NO--76% “ban would be over reacting”
 - YES--9%

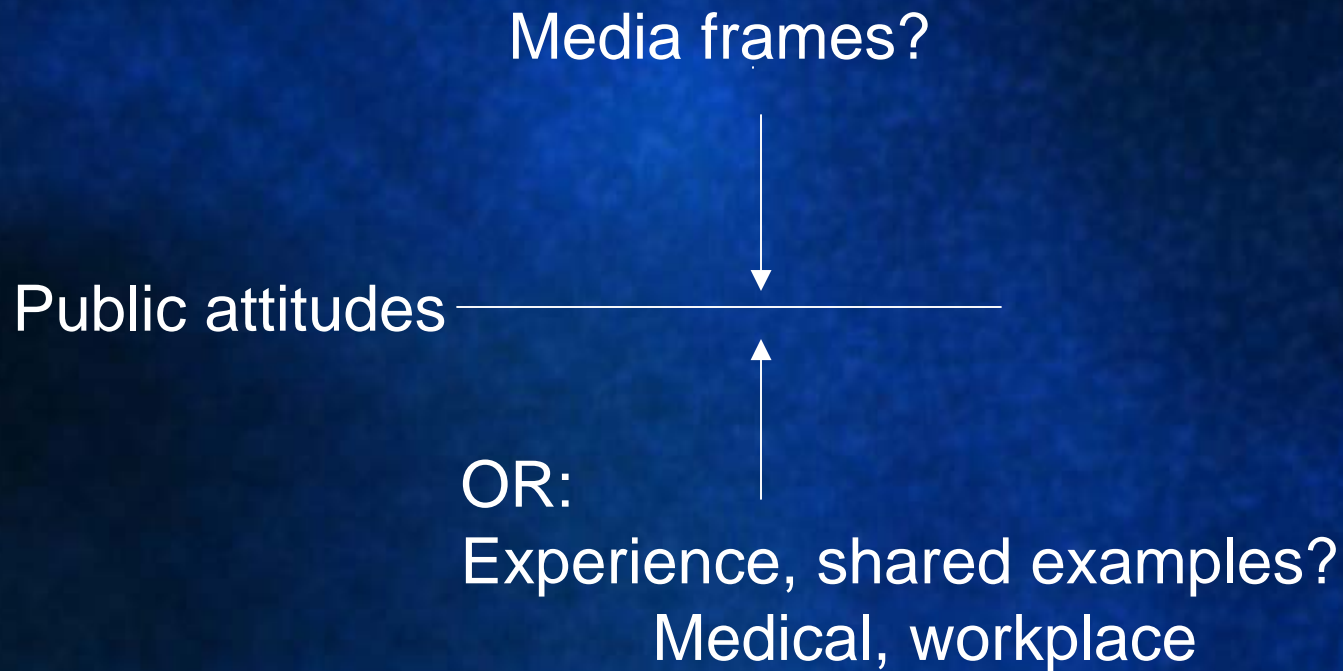
Could Industry Help Improve Public Trust?

- 89% preferred four top choices
 - **Increase safety tests** before market
 - **Supply more information** so people can choose
 - **Voluntarily use higher safety standards**
 - **Track better the risks** already in the market

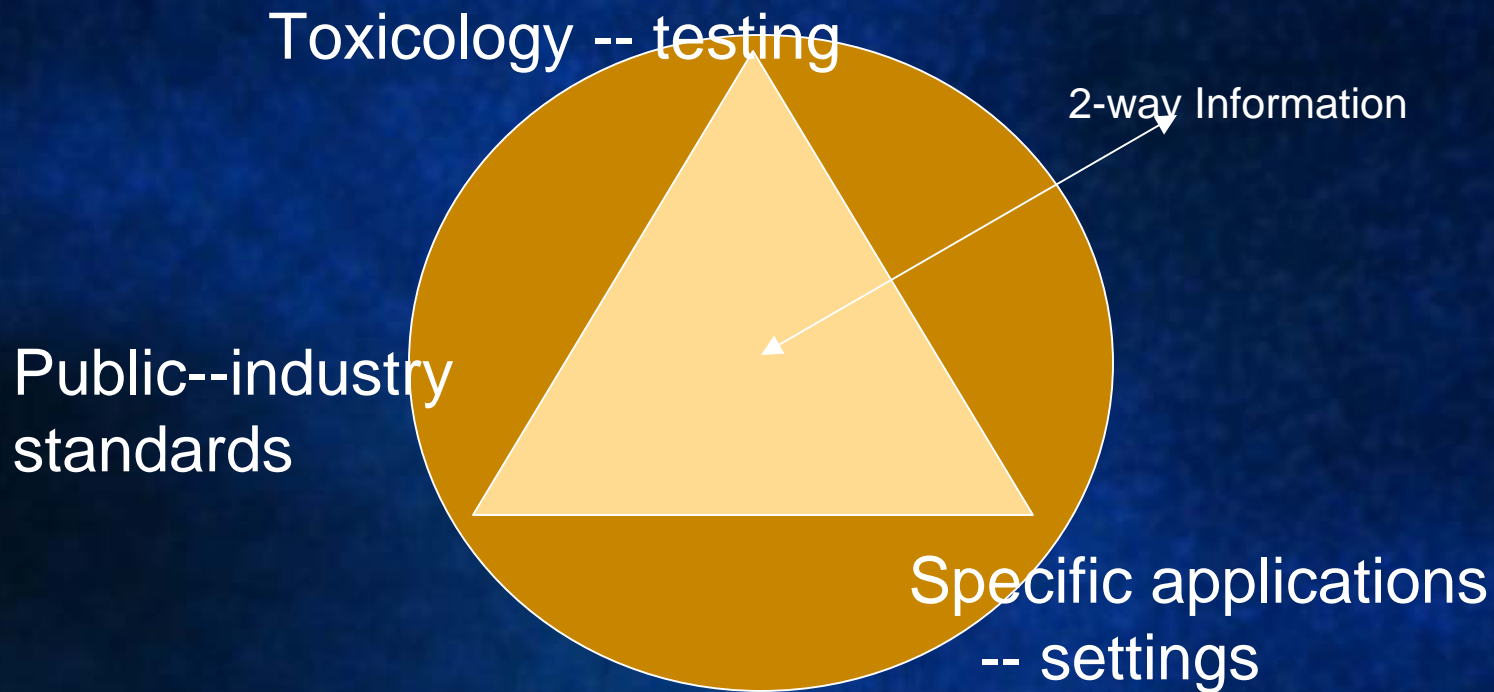
CONCLUSIONS

- Asking for more certainty about health and environmental risks, are concerned about testing, regulation to control for risks
- Concerns anchored in experience
- Remain optimistic about nanotechnology
- Institutional information channels are a problem

Counters Popular View of Opinion Formation



Results Suggest Need for 3 Oversight Frameworks +



Jane Macoubrie Ph.D.
Senior Advisor

Woodrow Wilson International Center for Scholars

Embry Research & Communications

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