

# Predicting the Future: How Ordinary People Make Sense of Emerging Technologies

**Susanna Hornig Priest, Ph.D.**

Assoc Prof and Director of Research,  
College of Mass Communications and Information  
Studies

Member, Nanocenter

University of South Carolina - Columbia

# Early U.S. Opinion Climate for Nanotechnology

## ★ Bainbridge, 2002 (JNR)

- ★ 3909 Internet respondents (NOT random)
- ★ 57.5% agree “human beings will benefit greatly”

## ★ Gaskell et al., 2005 (PUOS; 2002/3 U.S. data)

- ★ 850 U.S. telephone respondents
- ★ 50% “will improve our way of life”; 12% “no effect”; 4% “will make things worse”; 35% DK

## ★ Cobb and Macoubrie, 2004 (JNR)

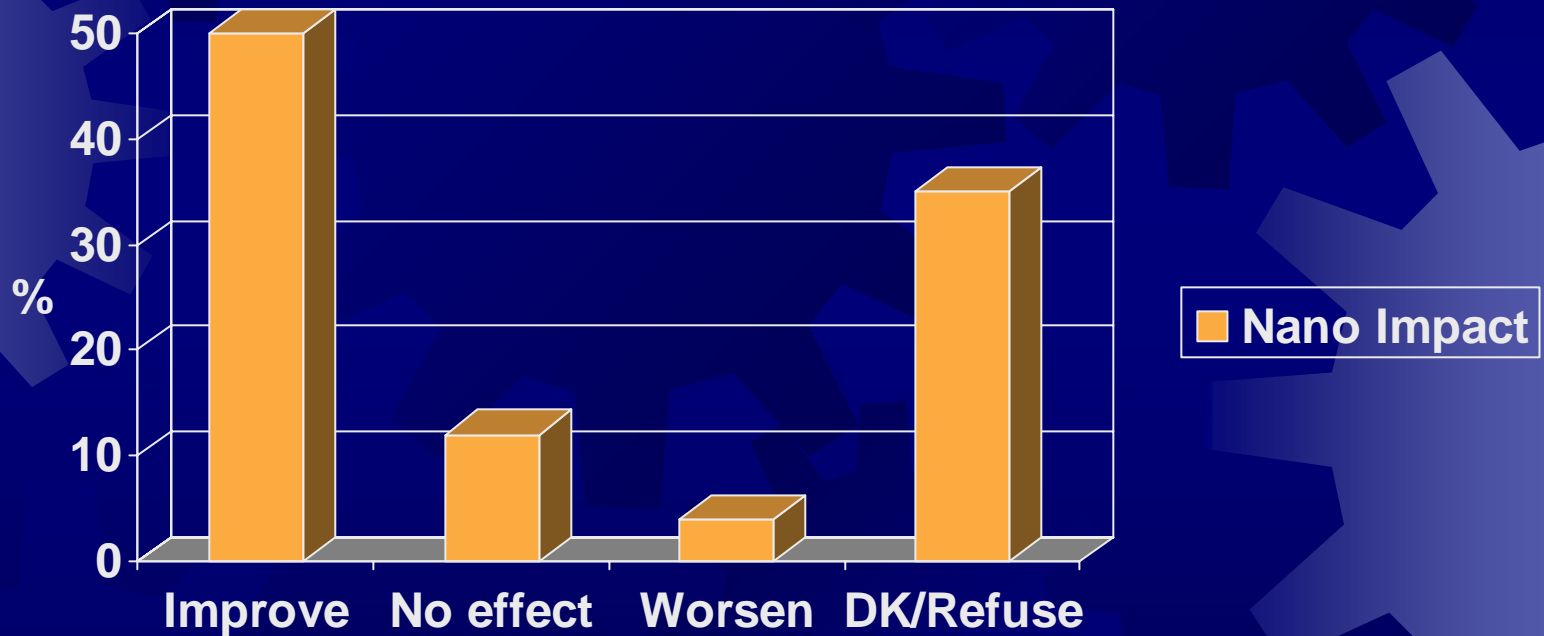
- ★ 1536 U.S. telephone respondents
- ★ Only 21.9% believe risks outweigh benefits

# Early U.S. Opinion Climate for Nanotechnology, Part II

- ★ Scheufele and Lewenstein, 2005 (JNR) and pers comm (2007)
  - ★ 10-point scale
  - ★ 32.2% positive (8-10), 42.5% neutral (4-7), 19.3% negative (1-3), 5.9% DK
- ★ Priest, 2005 CBS data (JNR, 2006)
  - ★ 46% “improve”; 13% “no effect”; 6% “worse”; 35% DK/Ref

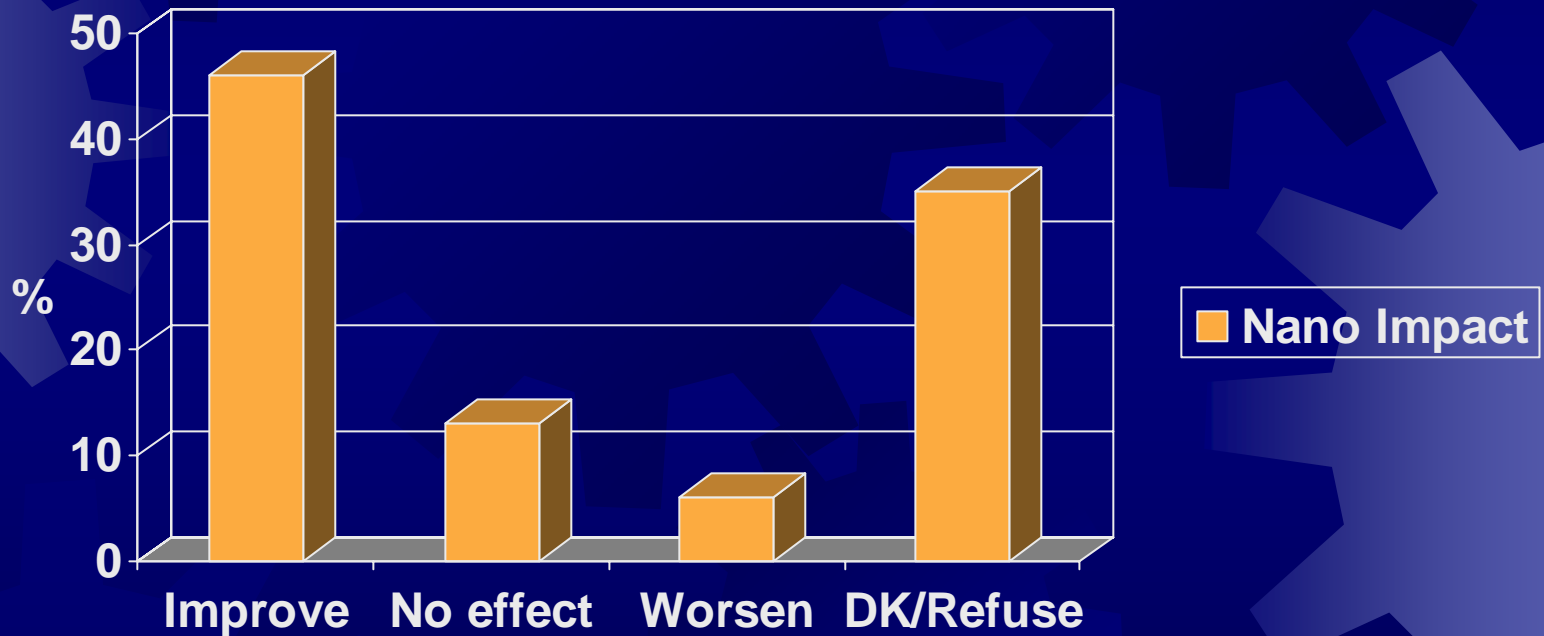
# Nano Impact, 20 Years (2003)

2002/3 U.S. data, N = 850



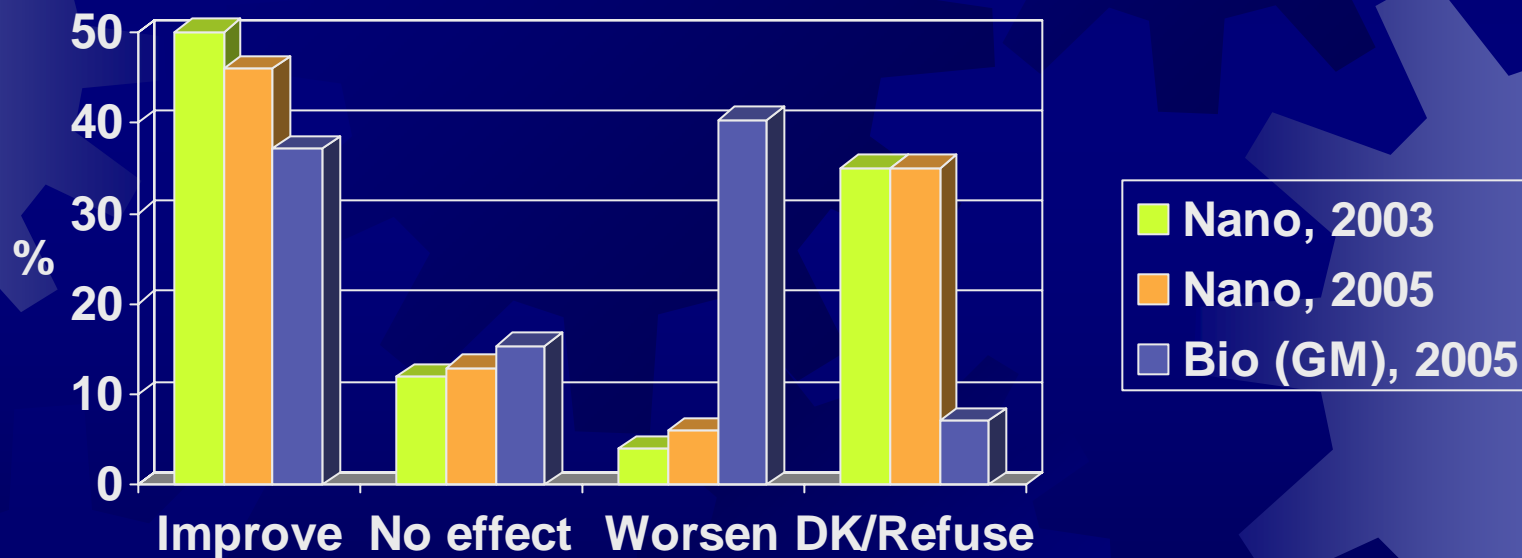
# Nano Impact, 20 Years (2005)

2005 U.S. data provided by CBS, N = 1200



# Bio vs. Nano

## Comparison of Bio (GM) and Nano Projections



# TRENDS???

- ✱ Is opinion for nano approaching that for bio/GM, or will these statistical differences remain?
- ✱ Are the concerns for bio and nano fundamentally different or the same?
- ✱ What will be the effect on public opinion when bio and nano converge?
  - ✱ Are DNA tech and material science culturally the same, or different?

# Initial Impressions in North America

- ★ 6 focus groups in U.S. and 3 in Canada, summer 2005 (combined data; NSF study)
- ★ Consistent with survey data
  - Most comments (nearly 90%) positive or neutral
  - Comments about benefits outnumber comments about risks (apx. 179 vs. 155)
  - Socioeconomic impacts (including privacy issues) account for about 1/3 of risk comments
  - Concerns over disruption (job loss), distribution (access to benefits)
  - Environment also resonates



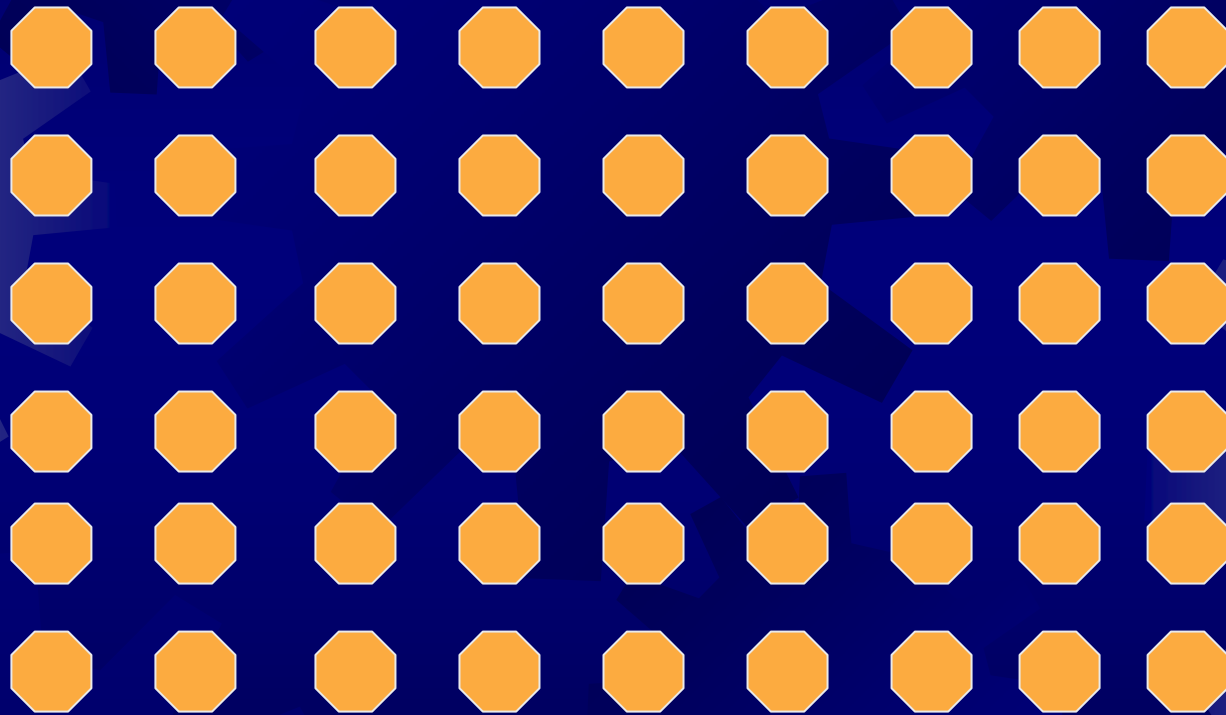
# Extending Social Theory to Predict Agbionano Reactions

- ★ What happens to opinion climate when nano and bio (med, ag) bio converge?
- ★ Social Amplification of Risk Framework
  - Social institutions can amplify or attenuate risks – but which ones, when, and why?
- ★ Media as one important social institution
  - One institution among many; not sole influence
  - Respond to envisioned threats (“surveillance” function)
  - News values reflect social values (Gans)
  - Threats to values, norms, expectations (*not just probability of physical harm*)

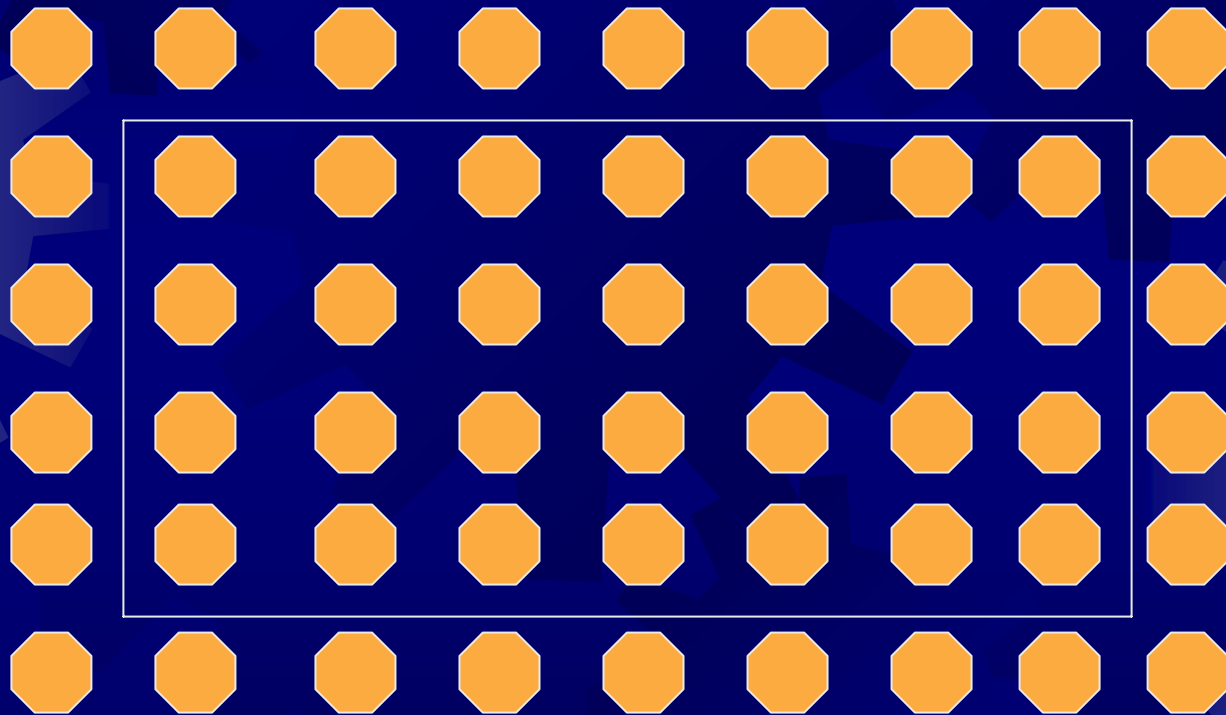
# Expanded Vocabulary of Risk

- ✦ “Lay” publics don’t use expert definitions
- ✦ Risk concept intertwined with...
  - Ethical concerns
  - Distributional concerns
  - Concerns over social disruption
- ✦ Resembles broader concept of “threat” as developed for understanding media function
- ✦ Multiple “publics” for science interpret equivalent media, messages differently, and may see different threats (Priest 2006, PUOS)

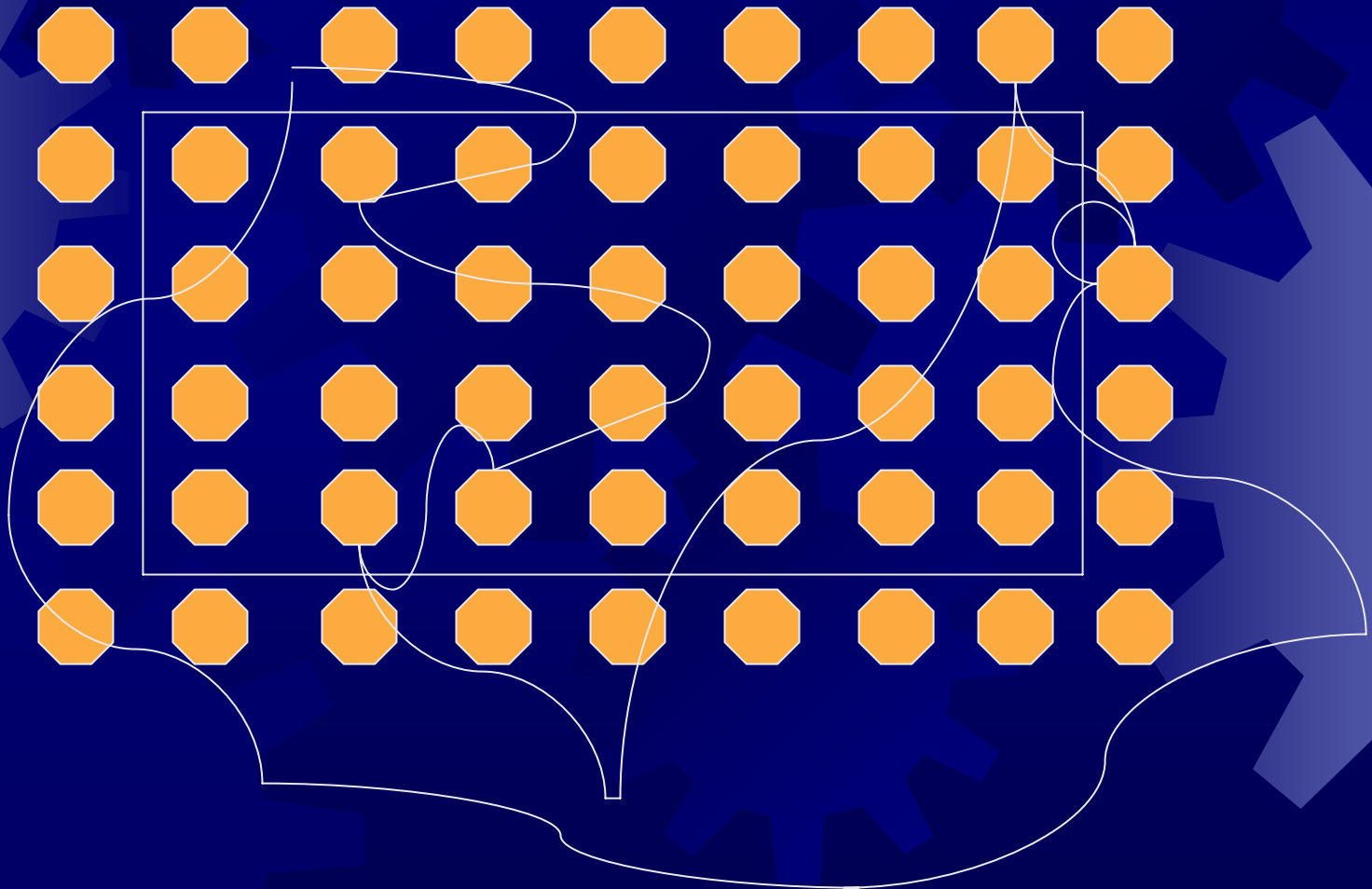
# Things that might be seen as risky



# Things “experts” see as risky



Things ordinary people may see as risky (or threatening)



# Predictions?

- ★ Nanobio in agriculture will not raise exactly the same concerns as agricultural (or other) biotech have up to now
  - *“Materials don’t have ethics”:*
    - Altering the material world does not create the same reaction as altering the “natural” or biological world
    - Nanotechnology applications often involve ordinary, familiar consumer products (not foods)
    - Medical nano applications will be seen as inherently positive (not lacking benefit)

# Predictions?

- ★ Agricultural biotechnology did raise issues of distributional and procedural justice
  - ★ Impacts on family farms and environmental integrity (threat to Gans' "pastoralism" value)
  - ★ Idea that people weren't consulted (threat to expectations for "altruistic democracy" and "responsible capitalism")

# Predictions?

- ★ Nanotech *is* likely to raise parallel concerns in these areas, *possibly producing amplification effects* for other risks
  - Need more research on this
- ★ Other social actors, institutions may direct media and public attention to particular concerns (*resource mobilization theory*)
  - Likely to require fewer resources when related to preexisting shared social values



# UNDERSTANDING ACTUAL PUBLIC CONCERNS

- ☀ Need to think more broadly than risk (narrowly defined) and its regulation to concept of “threat”
- ☀ Need to think in terms of multiple publics with different values and concerns
  - ☀ These publics are active audiences for media messages
  - ☀ Media often reflect public values and concerns, not just those of the scientific community

# ADDRESSING ACTUAL PUBLIC CONCERNS

- ☀️ “Public engagement” as more than an outreach exercise
  - 🌸 Not just “calming fears”
    - 🌱 No “nanobot” hysteria apparent in any available data, for example
  - 🌸 What are people’s real concerns?
  - 🌸 How can societal impacts be mitigated?