

Cross National Study of Upstream Public Deliberation on Emerging Health & Energy Nanotechnologies

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Public Perception and Participation In Nanotechnology

- 2006 estimated \$9 billion in global investment in nanotechnology R&D
- 2008 projected \$1.5 billion in US Federal Allocation for nanotechnology R&D



How Do We Involve the Public?

Social Science Involvement

- Social scientists act as mediators between public and scientists
- Upstream involvement of social scientists is unprecedented in this field
- Exploratory research given upstream involvement
- Collaboration of two cultures US & UK

Nanotechnology and Health Deliberation

	Pilot	Energy	Health
United States UCSB	Jan. 2007	Feb. 2007	Feb. 2007
United Kingdom Cardiff	Oct. 2006	Feb. 2007	Feb. 2007

Protocol

- Arrivals/Consent Forms
- Introductions
- Health Discussion
- Slide Presentations w/ Short Q&A's after each
- Questions/Agenda Setting
- Lunch and Reading Articles
- **World Café**
- Dialogue
- Debrief and Evaluations

- Total Time: 4 ½ Hours

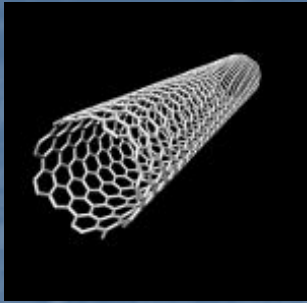
World Café

- Nano Basics
- Nano Medicine
- Human Enhancement



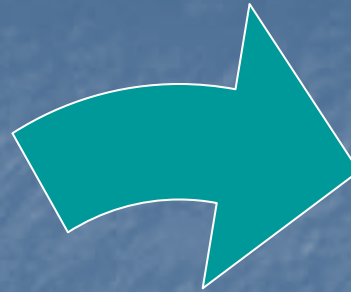
World Café

Small Group Table Discussions



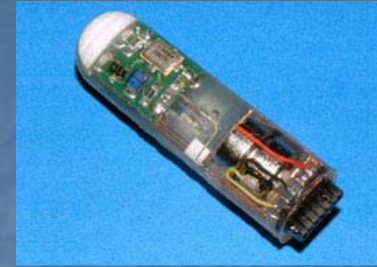
Nano Basics

Ex: What is Nanotechnology?



Nano Medicine

Ex: Targeted Drug Delivery



Human Enhancement

Ex: A Blind Person Can Regain Sight



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Santa Barbara Health Workshop World Café

of Men & Women

Order of Rotation

Group 1

Three Men
One Woman

1. Nano Basics
2. Nano Medicine
3. Human Enhancement

Group 2

One Man
Three Women

1. Nano Medicine
2. Human Enhancement
3. Nano Basics

Group 3

Four Men
One Woman

1. Human Enhancement
2. Nano Basics
3. Nano Medicine

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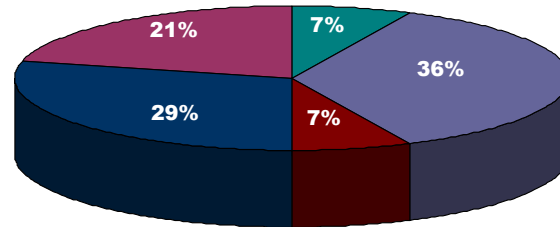
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SB Health Sample Demographics (n=14)

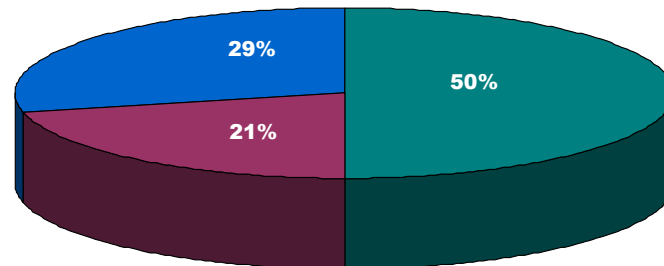
Education

■ High School ■ Some College ■ Associate
■ Bachelor ■ Grad or Prof



Age Range

■ 18-32 ■ 33-54 ■ 55 or older

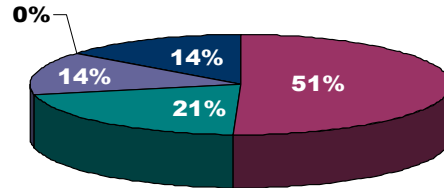


SB Health Sample Demographics (cont.)

(n=14)

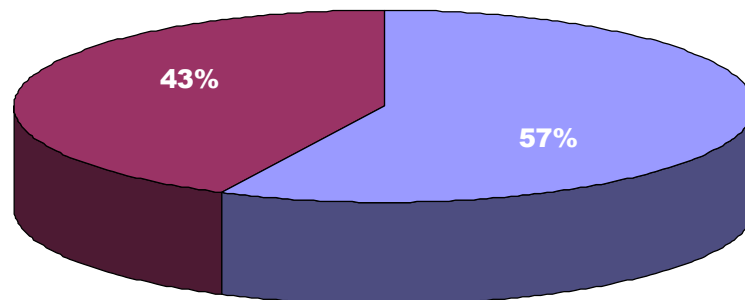
Ethnicity

■ White ■ Latino ■ Asian ■ Af-American ■ Other



Gender

■ Male ■ Female



Qualitative vs. Quantitative

- ◆ Qualitative \neq unsystematic
- ◆ Verbatim transcripts of all discussion
- ◆ Search for patterns across participants (individual responses)
- ◆ Study group/gender dynamics

Why Look at Gender?

	# of M vs. W	Male Word Count	Female Word Count
Group 1	Three Men One Woman	3,036 ($\bar{x}=1,012$)	1,177
Group 2	One Man Three Women	1,484	3,806 ($\bar{x}=1,268$)
Group 3	Four Men One Woman	3,647 ($\bar{x}=911$)	1,339

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Male & Female Positive Risk Perception

Male Positive

Female Positive

Comparison

“...I think that for us as a race, you know I would never give up on trying to, you know, get rid of some of the things that keep repeating themselves in our reproduction”

“...Personally, I lost a brother to cancer 10 years ago, and had some of the technology today, been available then, I think he would still be alive...”

Men speak more about implications of technology on a grand scale, whereas women relate it to personal experience.

This confirms findings of prior research.

Male & Female Negative Risk Perception

Male Negative

Female Negative

Comparison

"I could just see a lot of potential problems with the way society functions with the advancement of this technology."

"I guess it's like one of the big problems of so-called progress... Like you could say all the technological advances we've made have really severely hurt the environment..."

Males and females shared some negative risk perception, especially about unknown impacts on nanotech and how it may alter social relations.

Male & Female Ambivalence

Male Ambivalence

"Sounds like a good and bad monster, like one that can be so helpful to us, you know maybe knocking out some really gnarly diseases and things, and then on the other hand the potential, lets say what can happen if it got into the wrong hands, or if people won't abuse it, sounds very dangerous too..."

Female Ambivalence

"...so one brother died of cancer and my other brother's 80% blind...I thought wow that would be so cool, you know that, I mean that would be neat, but some people might look at it like you know, well that's just the way it is and you know he should just be left alone kind of thing."

Comparison

Shared themes between males and females

Suggestive gender differences in how those themes are expressed, the same as in positive risk perception.

Conclusions

If Only There Was More Time...

- Gender and sequencing effect the way people discuss nanotechnology
- Compare smaller group dynamic with large group dynamic
- Compare Health Workshop to Energy Workshop
- Compare cross-culturally
- Research differences in:
 - Ethnicity
 - Age
 - Education
 - Socioeconomic Status

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