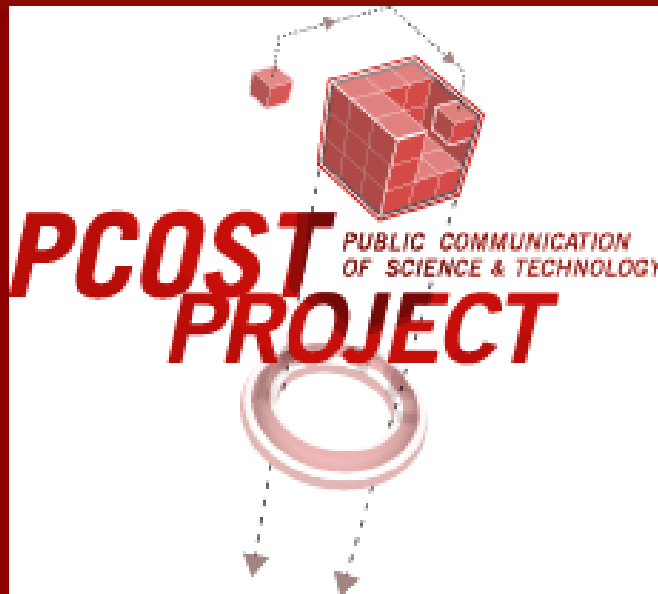




Communication Risk to the Media and the Public - White Paper Experience

SRA 2008 – © Berube 2008
December 10, 2008 – Boston



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THE WHITE PAPER

- NSF NIRT #0809470 – Applied Nanoscience: Public Perception of Risk 2007-2011 (<http://communication.chass.ncsu.edu/nirt/Home.html>).
- Workshop (August 28-29, 2008) <http://communication.chass.ncsu.edu/nirt/Deliverables.html>.
 - Power Points.
 - Streams and Downloads.

THE WHITE PAPER

■ Research

- Delphi questionnaire (Jan-Mar 2009).
- Public Service and Policy Research (IPSPR) w USouth Carolina (mirror surveys).
- Data analysis w UWisc.
- Civic Engagement exercises (assessment) w USC.
- Focus Group. (nanofood) w UMinn.

■ Supplement

- History with NSF.
 - Summer 2008 (144 pp.)
- ## ■ Train-the-Trainer (Scheufele, Wisc.)

1. STOP TEACHING SCIENCE

- 1. Deficit theory of science literacy. Self-selected exclusion. Educational reform.**
- 2. Heuristics and biases (the 3-4 As).**
 - a. Affect.**
 - b. Anchoring or adjustment.**
 - c. Availability.**
- 3. Popular culture is not affecting perception significantly.**
- 4. Risk has a negative valence. Boomerang effects.**

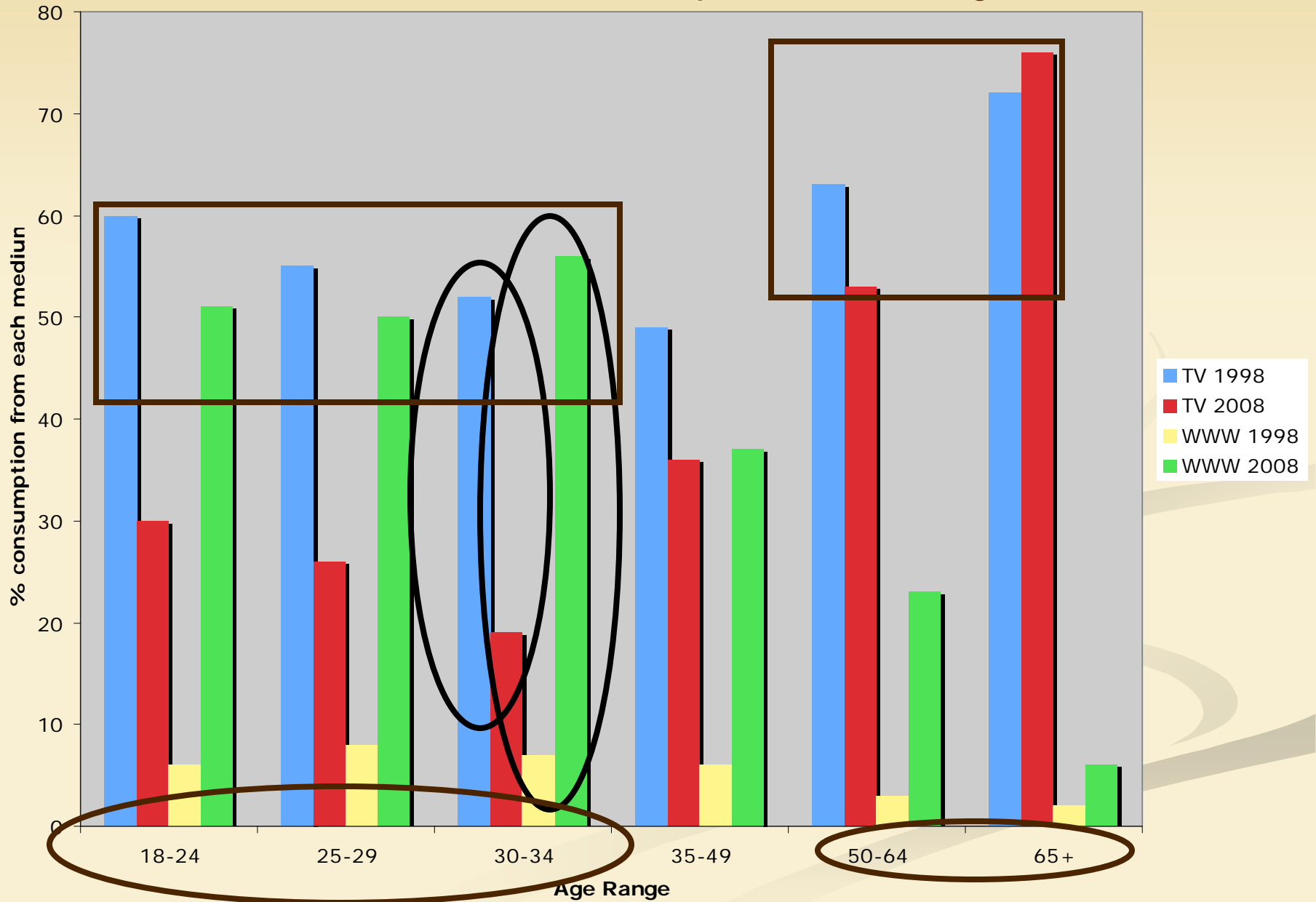
2. SEE THE BIG PICTURE

- 1. Primacy and recency effects. Low levels of recall and retention.**
- 2. Central and peripheral routes (Petty & Cacioppo) not two separate routes.**
- 3. Tell stories. Narratology is the game (link to affect heuristic).**
- 4. Risk fatigue is real. Findings from health communication (Surrey project).**

3. USE MULTIPLE MEDIA.

1. Data indicates demographics favor net-newsers in the USA (Pew data).
2. Design web resources as digital media NOT as text.
3. Net resources amplify risk messages though they could also attenuate them.
4. Staying on course with the evolving media: Social networking services (SNS), Twitter (micro-blogging), sliver TV, Second Life....

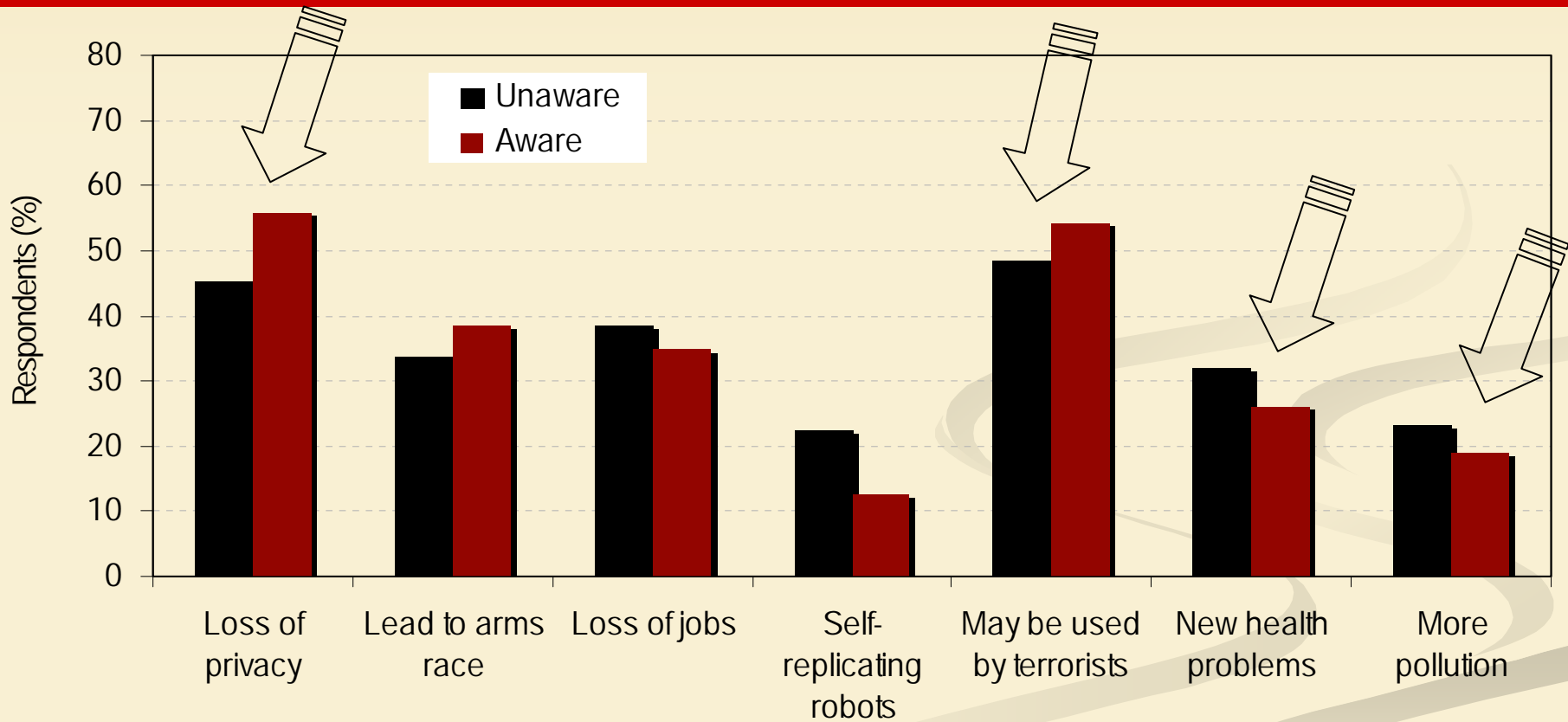
TV and Internet News Consumption
Pew Research Center for the People and the Press, August 2008



4. STAKEHOLDERS ARE NOT EQUAL.

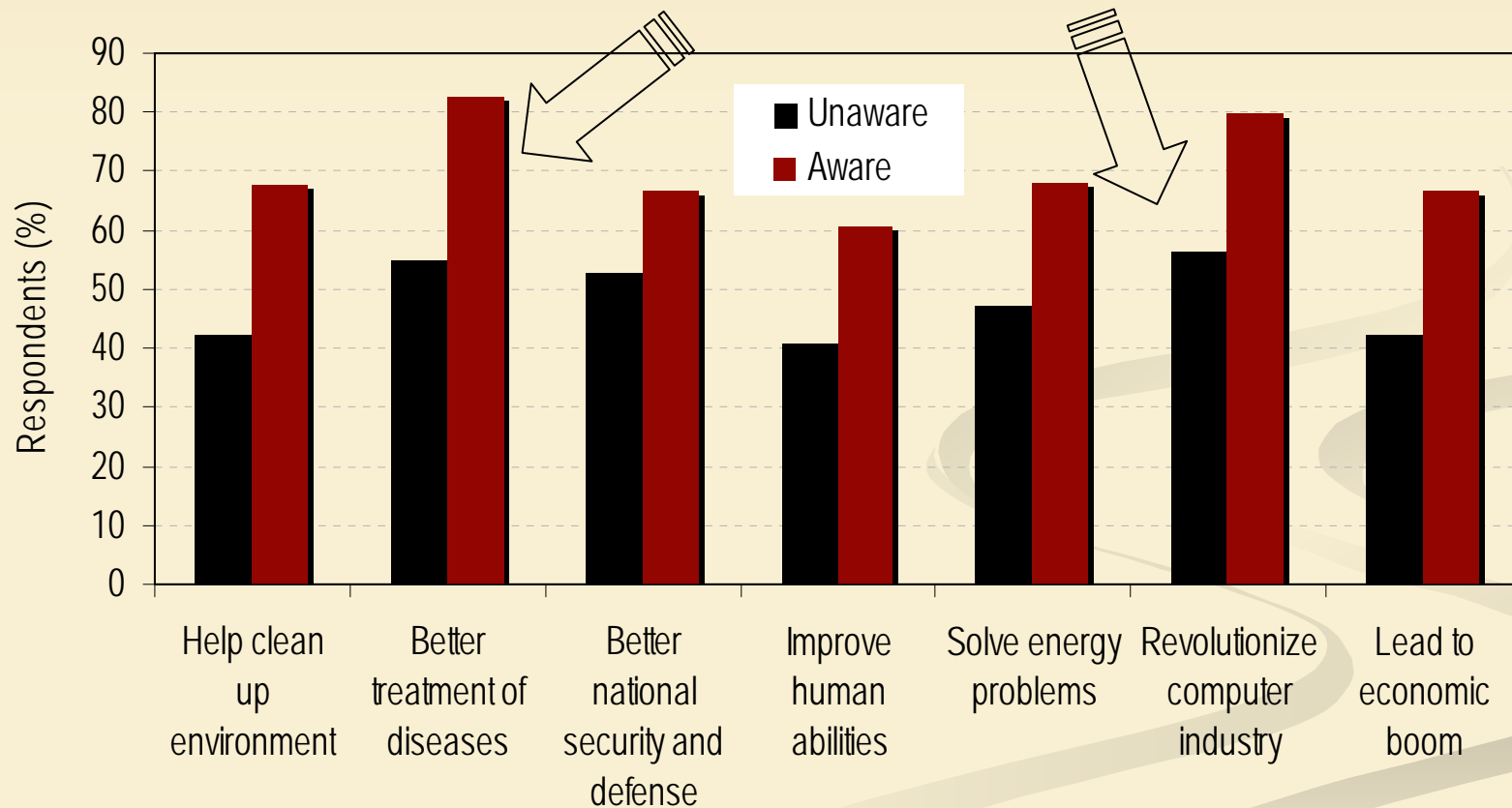
- 1. Public is generally disinterested (70%).**
- 2. Public is overwhelmingly disinterested in science and technology policy (90%).**
- 3. Prepare the public for a trigger event (contagion). Inoculate the public. Anchor a positive.**
- 4. Engagement is not for everyone. Engagement exercises may not produce usable data.**

PERCEIVED RISKS OF NANO: AWARE VS. UNAWARE RESPONDENTS HOW IMPORTANT IS AWARENESS?



Hart 2007

PERCEIVED BENEFITS OF NANO: AWARE VS. UNAWARE RESPONDENTS HOW IMPORTANT IS AWARENESS?



Hart 2007

NATIONAL TECHNOLOGY FORUMS RESULTS OF DELIBERATION

Deliberation resulted in participants' reduced certainty about the benefits of "enhancing human capabilities. Pre-deliberation, 82% were at least somewhat certain the benefits would exceed the risks; post-deliberation the percentage of these respondents was reduced to 66%. Conversely, deliberation slightly strengthened participants' discordant perception that most scientists were confident the benefits would exceed the risks (92% pre-deliberation and 96% post-deliberation).

10th Conference on Public Communication of Science and Technology,
Malmö, Sweden, June 2008

NATIONAL TECHNOLOGY FORUMS RESULT OF DELIBERATIONS

Deliberation resulted in opposition to most kinds of hypothetical human enhancements that they were asked about. Participants were asked to report their support or opposition to five kinds of enhancements on a five-point scale. After deliberating, participants opposed all enhancements except for “implants to catch diseases before they became dangerous”. Before deliberating, participants also supported “bionic eyes” and were neutral about using nano-wires and implants to communicate with other people or computers.

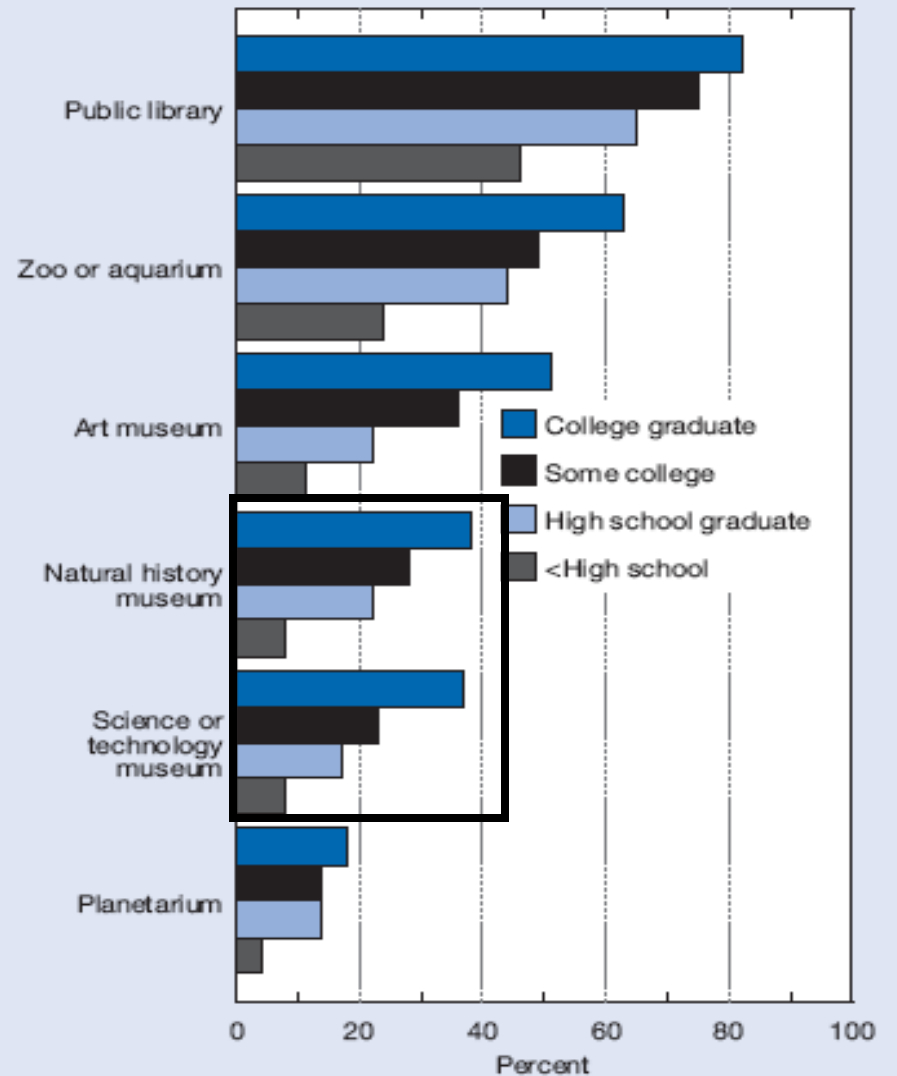
5. ENGAGE THE RIGHT AUDIENCES.

- 1. Audiences process information through their own perceptual filters, i.e., audiences use religious beliefs, moral schema, etc.**
- 2. Perceptions are just that – the role of opinion – attitude – perception – behavior. Linking perception to behavior is not causal.**
- 3. Determine your audience (the 7-10 percent solution).**

NISE AUDIENCES



Figure 7-5
Attendance at informal science institutions, by institution type and education level: 2006



SOURCE: Horrigan J, The Internet as a Resource for News and Information about Science, *Pew/Internet* (November 2006); and Pew Internet & American Life Project Survey (January 2006), <http://www.pewinternet.org>.

THE BUSINESS OF COMMUNICATING RISK

- 1. Stop using intuition when designing a communication campaigns. Failures are expensive. (esp., trust and anchoring).**
- 2. Use data.**
- 3. Don't over-extend your expertise. Risk on a dime is not wise. Use communication professionals.**

SOME FINDINGS

1. Dosage/Exposure discounting effect. **96**
2. Mini-Max or Maxi-Min Effects: Low probability – high consequence bias. **97**
3. Rumor and fraud. **98**
4. Risk profile shifts. **99**
5. Power language. **100**
6. Risk hormesis. **101**
7. Risk homeostasis. **102**
8. Risk fatigue. **103**

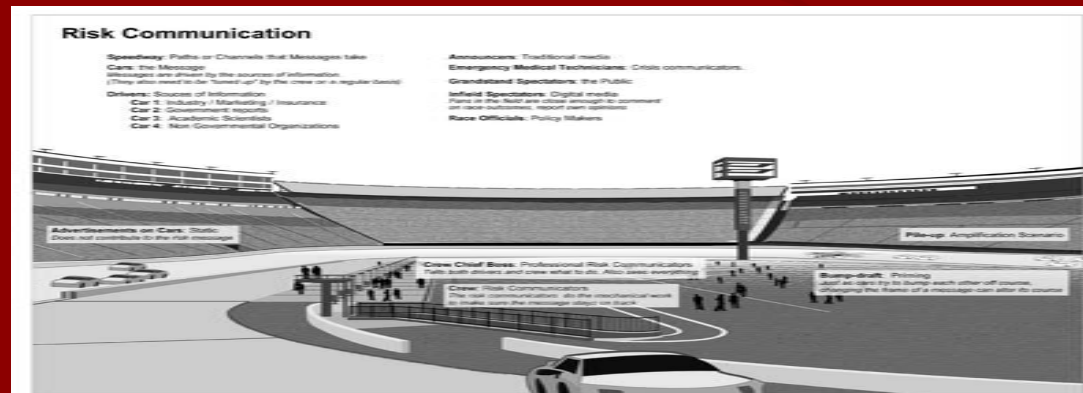
ALGORITHM & MODEL

■ Risk communication algorithm.

$$\text{Risk} \leftarrow \frac{\text{med}(Ev_1 + Ev_2 + \dots + Ev_n) \text{ med}(P_1 + P_2 + \dots + P_n)}{T} \quad I$$

Ev = event, P = probability, I = information, and T = trust.

■ Risk communication model.



Risk Communication

Speedway: Paths or Channels that Messages take

Cars: the Message

Messages are driven by the sources of information.

(They also need to be "tuned up" by the crew on a regular basis)

Drivers: Sources of Information

Car 1: Industry / Marketing / Insurance

Car 2: Government reports

Car 3: Academic Scientists

Car 4: Non Governmental Organizations

Announcers: Traditional media

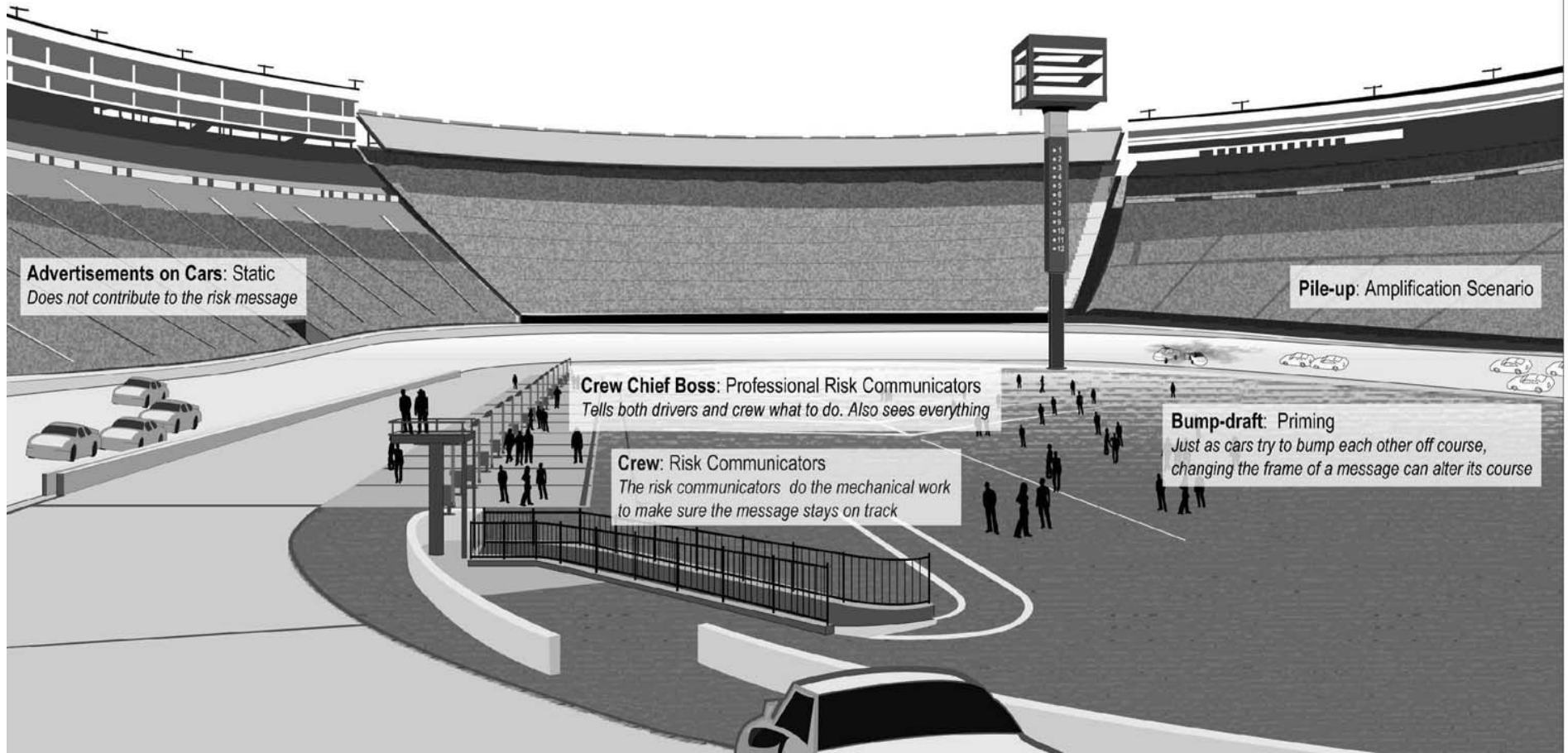
Emergency Medical Technicians: Crisis communicators.

Grandstand Spectators: the Public

Infield Spectators: Digital media

Fans in the field are close enough to comment on race outcomes, report own opinions

Race Officials: Policy Makers





RISK COMMUNICATION AND PUBLICS

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THANKS
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