

## Session No. 41

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**Course Title: Social Dimensions of Disaster, 2<sup>nd</sup> edition**

**Session 41: What Works in Risk Communication?**

**1 hr.**

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### **Objectives:**

- 41.1 Describe a case example of an assessment of variations in risk communication and risk acceptance
- 41.2 Describe 12 steps that comprise community disaster education
- 41.3 Summarize recent research on four factors that constrain risk communication
- 41.4 Describe four general principles of effective risk communication
- 41.5 Discuss four principles for attaining public acceptance of disasters as a social problem.

### **Scope:**

This session introduces students to theoretical frameworks of risk communication, including the steps in implementing community disaster education. Recent research on factors that constrain risk communication, general principles of effective risk communication are reviewed as are basic principles for attaining public acceptance of disasters as a social problem..

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### **Readings:**

#### *Student Reading:*

Rogers, George O. 1998. "Siting Potentially Hazardous Facilities: What Factors Impact Perceived and Acceptable Risk?" *Landscape and Urban Planning: An International Journal of Landscape Ecology, Landscape Planning and Landscape Design* 39:265-281.

#### *Professor Readings:*

American Red Cross. 1992. *Community Disaster Education Guide*. Washington, D.C.: American National Red Cross.

Blanchard-Boehm, R. Denise. 1998. "Understanding Public Response to Increased Risk from Natural Hazards: Application of the Hazards Risk Communication Framework." *International Journal of Mass Emergencies and Disasters* 16:247-278.

O'Brien, Paul W. 2003. "Risk Communication and Public Warning Response to the September 11<sup>th</sup> Attack on the World Trade Center." Pp. 355-372 in *Beyond September 11<sup>th</sup>: An Account of Post-Disaster Research*, Natural Hazards Research and Applications Information Center, Public Entity Risk Institute, and Institute for Civil Infrastructure Systems. Special Publication No. 39. Boulder, Colorado: Natural hazards Research and Applications Information Center, University of Colorado.

Rottman, Steven J. 2000. *Individual and Community Disaster Education Course*. Emmitsburg, Maryland: Emergency Management Institute, Federal Emergency Management Agency (See Chapter 28 entitled "Communicating Preparedness Information I—Principles of Behavior Change").

*Background References:*

Loseke, Donileen R. 2003. "How to Successfully Construct a Social Problem." Pp. 291-303 in *The Study of Social Problems* edited by Earl Rubington and Martin S. Weinberg. New York: Oxford University Press.

Rogers, George O. 1997b. "The Dynamics of Risk Perception: How Does Perceived Risk Respond to Risk Events?" *Risk Analysis* 17:745-757.

Major, Ann Marie. 1999. "Gender Differences in Risk and Communication Behavior in Response to an Earthquake Prediction." *International Journal of Mass Emergencies and Disasters* 17:313-338.

Adeola, Francis O. 2003. "Flood Hazard Vulnerability: A Study of Tropical Storm Allison (TSA) Flood Impacts and Adaptation Modes in Louisiana." Quick Response Research Report #162. Boulder, Colorado: Natural Hazards Research and Applications Information Center, University of Colorado.

Rogers, George O. 1997a. "Dynamic Risk Perception in Two Communities: Risk Events and Changes in Perceived Risk." *Journal of Environmental Planning and Management* 40:59-79.

Rogers, George O. 1992. "Aspects of Risk Communication in Two Cultures." *International Journal of Mass Emergencies and Disasters* 10:437-464.

Riley, Julie and Jack Meadows. 1997. "The Role of Information in Disaster Planning: A Case Study Approach." *Disaster Prevention and Management: An International Journal* 6:349-355.

Paton, Douglas and David Johnson. 2001. "Disasters and Communities: Vulnerability, Resilience and Preparedness." *Disaster Prevention and Management: An International Journal* 10:270-277.

Vogt, Barbara Muller and John H. Sorensen. 1994. *Risk Communications and the Chemical Stockpile Emergency-Planning Program*. Oak Ridge, Tennessee: Oak Ridge National Laboratory.

Mileti, Dennis S. and JoAnne De-Rouen Darlington. 1995. "Societal Response to Revised Earthquake Probabilities in the San Francisco Bay Area." *International Journal of Mass Emergencies and Disasters* 13:119-145.

Stallings, Robert A. 1995. *Promoting Risk: Constructing the Earthquake Threat*. New York: Aldine DeGruyter.

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### **General Requirements:**

Use Overheads (41-1 through 41-6 appended).

Use Student Handouts (41-1 and 41-2).

See individual requirements for each objective.

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### **Objective 41.1 Describe a case example of an assessment of variations in risk communication and risk acceptance.**

#### **Requirements:**

Use Overhead 41-1.

#### **Remarks:**

I. Introduction.

#### **Remarks:**

I. Introduction.

A. **Exercise.**

1. **Remind** students of exercise procedures.
2. **Divide** class into four groups and assign roles.

- a. Chair.
- b. Reporter.
- c. Timer.

3. **Announce** time limit: 5 minutes.

**B. Display** Overhead 41-1; “Workshop Tasks.”

1. Group 1 – What are the differences in the two alternative explanations Rogers (1998) proposed for the acceptance of risky technologies in a community?
2. Group 2 – What research methods did Rogers (1998) use to examine the factors that constrain perceived and acceptable risk?
3. Group 3 – What major findings did Rogers (1998) document regarding perceived and acceptable risk?
4. Group 4 – What general principles did Rogers (1998) document regarding perceived and acceptable risk?

**C. Start** discussion.

**D. Stop** discussion.

**II. Accepting potentially hazardous facilities.**

**A. Group 1 report:** 2 minutes.

**B. Supplement** as required (adapted from Rogers 1998, pp. 270-271).

**1. Acceptability as a function of technology.**

- a. Benefits are worth the risks.
- b. Type of technology is key constraint.
- c. “. . . policy makers must be sensitive to the characteristics of the technology . . .” (p. 270).
- d. Policies are designed to “. . . redistribute the risks and benefits associated with technologies to achieve fairness through a better or more appropriate balance of risks and benefits.” (p. 270).

2. **Acceptability as a function of the conditions of acceptability.**

- a. Public participation.
- b. Technological safety systems.
- c. Emergency preparedness.
- d. Community and personal incentives.
- e. Operational control.
- f. “. . . policy makers should be sensitive to the process of siting, construction, operation and shutdown of the facility in the context of the comprehensive relationship between the technology and the community (i.e., in an ecological sense).” (p. 271).

III. Study methods.

A. Group 2 report: 2 minutes.

B. **Supplement** as required (adapted from Rogers 1998, pp. 271-272).

1. **National random sample.**

- a. Texas A & M Public Policy Resources Laboratory.
- b. Sample size varied by question, i.e., some questions were deleted for different sub-groups.
- c. Sample size varied from 665 (wind farm questions) to 602 (conventional power) (see footnote 1, p. 271).

2. **Computer-assisted-telephone interviews.**

3. **Open-ended questions** were coded after interview completion. These were followed by fixed-choice response items.

4. **Perceived risk** measured by fixed-choice Likert scale (p. 272).

5. **Acute versus chronic risk.**

- a. **Acute**, e.g., a major accident with release of radioactive fallout.
- b. **Chronic**, e.g., routine release of air-borne toxic materials.

6. **Acceptability** (6 technologies compared, e.g., wind farms to nuclear) measured by responses to:
  - a. **Risk mitigation mechanisms**, e.g., requiring emergency plans.
  - b. **Informational programs**, e.g., requiring community advisory boards to keep public informed.
  - c. **Direct and indirect compensation**, e.g., giving nearby residents reduced tax or utility changes.
  - d. **Operational control**, e.g., “. . . giving nearby residents authority to change operations to improve safety.” (p. 272).

IV. Major findings.

A. Group 3 report: 2 minutes.

B. **Supplement** as required (adapted from Rogers 1998, pp. 272-276).

1. **Most often mentioned**: economic conditions, e.g., unemployment.
2. **Economy** identified as most important community problem.
3. “More than one person in five (20%) rated the risks as greater than a 50-50 chance for all six technologies” (p. 273).
4. “The proportion of respondents favoring each technology is lowest when assessed in terms of having a facility in their community.” (p. 274).
5. “Respondents were least likely to favor offering tax incentives to companies to develop nuclear power plants in their community” (p. 274).
6. “The pattern of technological acceptability for these situations is clearly more driven by the conditions, than either the risks or the benefits associated with the technologies.” (p. 275).

V. General principles.

A. Group 4 report: 2 minutes.

B. **Supplement** as required (adapted from Rogers 1998, pp. 276-278).

1. Economic assessments of risk and benefit are inadequate.
2. Principles of democracy and capitalism better explain what is acceptable risk.
3. “The principles of democracy seem to dictate that risks are more acceptable if a free flow of information about the risks can be established.” (p. 277).
4. “Principles of capitalism would suggest that whatever is required, expected or asked if one economic actor in a class . . . will be asked of all actors in that class, including concepts of fair-play, competition, free-market, and marginal utility.” (p. 277).
5. “. . . the most important actions a company can take to establish credibility and trust regarding safety, is to open the processes aimed at achieving safety, both among employees and to the public.” (p. 278).

### **Supplemental Considerations:**

The key **messages** of this section are: 1) risk communication processes are **complex** and 2) research on risk communication and risk acceptance has documented **key constraints** that guide public responses. Perceptions of safety were **documented** by Rogers (1998), as being the key factor that **constrained** definitions of acceptable risk. But “safety” is **not** an easily defined state, rather it is a **perception** that can and must be developed by community leaders, including those within the business sector. Different strategies of **risk communication**, e.g., flood threat, must be differentiated from those designed for **risk acceptance**, e.g., siting a nuclear power plant within a community. The **analytic frameworks** for understanding both types of processes have **close parallels**, however. Depending on the **quality** of the student group reports, this section may be very brief. Some professors may **expand** this section through more detailed analysis of the **methods** used and specific **findings** and **conclusions** drawn.

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### **Objective 41.2 Describe 12 steps that comprise community disaster education.**

#### **Requirements:**

Overhead 41-2.

Student Handout 41-1.

#### **Remarks:**

I. Introduction.

- A. **Explain:** The Disaster Services Unit of the American Red Cross (1992) developed an implementation plan for community disaster education.
  - B. **Field tested** and documented to be applicable to most, if not all, communities.
  - C. **The implementation plan** differs from specialized training, e.g., search and rescue, damage assessment, etc.
  - D. **Community disaster education** is conceptualized as “. . . the process of increasing public awareness and educating the community in order to help people prevent, prepare for, and cope with disasters that may occur.” (ARC 1992, p. 1).
  - E. **A goal** of the ARC Board of Directors was to have this plan implemented nationwide during the late 1990s.
- II. 12 steps in community disaster education.
- A. **Distribute** Student Handout 41-1; “12 Steps in Community Disaster Education.”
  - B. **Display** Overhead 41-2; “12 Steps in Community Disaster Education.”
  - C. **Illustrate** the 12 steps.
    - 1. **Identify community hazards.**
      - a. Reference Sessions No. 4; “Overview of Disasters and Hazards in the U.S.A. Today.”
      - b. Participants in the implementation process must identify the most probable hazards.
      - c. Which hazards are low probability, but potentially catastrophic? (discuss terrorism).
      - d. **Ask students:** “What types of resources might the implementation participants consider? (reference field trips and Session No. 33; “Implementing Emergency Management Information Technology”).
    - 2. **Develop a community profile.**
      - a. Diverse publics, diverse information sources.
      - b. Build on routine, not separate systems.

- c. Special populations, e.g., schools, medical centers, prisons, nursing homes, etc.
- d. Identify resource groups, e.g., organized labor groups, business associations, media organizations.

**3. Identify target audiences.**

- a. Combine information from steps 1 and 2.
- b. **Example:** evacuation requirements for elderly residing in nursing homes.
- c. **Example:** location and size of facilities that store, manufacture or transport hazardous materials.
- d. **Ask students:** what methods may be used in any community to obtain relevant information? (e.g., planning office, local reference librarian, etc.).
- e. **Ask students:** “Why should children be considered as a high priority target audience?”

1) **Record** student responses on chalkboard.

2) **Supplement**, as required.

- a) Children will listen, learn, and act on disaster preparedness messages more than adults do.
- b) Children take disaster preparedness messages home to parents, siblings, friends, neighbors, and relatives.
- c) Children are a high risk group for most hazards.
- d) Classroom based education is a good way to recruit teachers for further disaster preparedness efforts.

**4. Identify current CDE activities.**

- a. Some groups have ongoing disaster education programs in most communities.

- b. Content and communication mechanisms used should be identified.
- c. **Ask students:** What would be examples of groups you would recommend contacting if you were on such an implementation team?"
- d. **Record** student responses on chalkboard.
- e. **Supplement** as required.
  - 1) Emergency management office.
  - 2) Local Red Cross chapter.
  - 3) Fire and law enforcement.
  - 4) Schools.
  - 5) Media organization.
  - 6) Voluntary disaster relief organizations.
  - 7) Lifeline companies, e.g., electric, gas, water, telephone, cable TV, insurance.

5. **Organize a CDE planning team.**

- a. Recruit internally and then seek members from other agencies.
- b. Increases in size and diversity will introduce awareness of needs, gaps, and potential resources.

6. **Determine the community's information needs.**

- a. **Objective:** who needs what information?
- b. **Actual disaster threat:** which groups would respond to warnings? Evacuations? Recovery?
- c. **Myth:** to what extent do community groups believe in disaster mythology? (Reference Session No. 7; "Disaster Mythology").
- d. **Barriers:** what obstacles impede risk information efforts? (e.g., language or cultural qualities).

**7. Identify ways target audiences receive information.**

- a. **Consider:** which media reach each target population?
- b. **Determine:** which organizations and groups serve each target audience?
- c. **Understand:** who are the opinion leaders who most influence each target audience?

**8. Determine activities and approaches.**

a. **Select appropriate media.**

- 1) Print, e.g., newspapers, brochures, posters, etc.
- 2) Electronic, e.g., radio, television, Internet, etc.
- 3) Audiovisual, e.g., DVDs, VHS tapes, photographs, etc.

b. **Select activities.**

- 1) Group presentations, e.g., service groups like Rotary or Lions.
- 2) Sponsor workshops, conferences, disaster fair, etc.
- 3) Participate in ongoing events, e.g., tornado safety week.

c. **Principles that increase message effectiveness.**

- 1) Limit messages, e.g., “Studies have shown that when the average adult hears information, he or she remembers less than half of it after one hour, less than one-fourth of it after one day, and less than one-tenth of it after one week.” (ARC 1992, p. 24).
- 2) Use positive messages, e.g., emphasize what to do, rather than what not to do.
- 3) Avoid mixed or value-laden messages, e.g., internal contradictions lead to rejection as evidenced by weather reporters standing outside during a storm and instructing people to “stay inside”.

- 4) Use awareness and educational messages appropriately, e.g., people are more likely to respond if they are made aware of a threat and then confronted with a message (educational) that gives more in-depth information.
- 5) Correct myths and misinformation, e.g., “. . . identify the misconception, state that it is incorrect, provide the correct information, and follow up by explaining the right action to take.” (ARC 1992, p. 26).
- 6) Overcome the desire to tell everything, e.g., select a few key points for focus and repeat them.
- 7) Time your messages, e.g., emphasize seasonal start-ups, such as hurricane or tornado season and, anniversary dates of locally historic disasters.

**9. Determine cost and resource requirements.**

**a. Example costs.**

- 1) Materials.
- 2) Workshops.
- 3) Conference presentations.

**b. Identify funding opportunities.**

- 1) Grants, e.g., local, state, and federal agencies.
- 2) Community United Way.
- 3) Relevant businesses, e.g., insurance companies.

**10. Put it all together** (adapted from ARC 1992, p. 33).

- a. Background on community hazards, demographics, and information needs.
- b. Identification of target audiences and methods of reaching them.
- c. Prioritized list of audiences for initial and subsequent outreach—first year, second year, third year, etc.

- d. Information to be disseminated.
- e. Human and community resources to further the effort.
- f. Means for evaluation of the CDE effort and how feedback will be incorporated into ongoing planning.

**11. Implement the CDE plan.**

- a. Regularized meetings.
- b. Credibility building process, e.g., first impressions are critical.

**12. Evaluate and build on initial work.**

- a. Three principles.
  - 1) Tenacity is a key requirement.
  - 2) Learning from and adapting to feedback is mandatory.
  - 3) When unique opportunities pop up, go for it.
- b. Reference Session No. 32 (“Strategic Planning by Local Emergency Managers”) and describe “organizational intelligence”, i.e., mechanisms for monitoring the environment.

**Supplemental Considerations:**

Depending on the **course context**, this section may be **expanded** through extended discussion and additional illustrations. Some professors may prefer to **reference** the Student Handout and provide only **brief elaboration** when the Overhead is displayed. Conversely, those emphasizing a more **theoretical approach** will use the time saved to **elaborate** on the **upcoming** sections rather than the more **prescriptive** “how to do it” material that comprise this section.

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**Objective 41.3 Summarize recent research on four factors that constrain risk communication.**

**Requirements:**

Use Overheads 41-3 and 41-4.

Use Student Handout 41-2.

**Remarks:**

I. Theoretical model: risk communication.

A. **Explain:** Since the 1970s numerous formulations (e.g., Mileti et al. 1975, Sorensen et al. 1987; Lindell and Perry 1992; Vogt and Sorensen 1994; Drabek 1999) of risk communication models have been explored.

1. **Despite differences in nomenclature** and focus, most of these models reflect a limited number of components.
2. **New research** has added precision in interpretation and new areas for model expansion.

B. **Display** Overhead 41-3; “Theoretical Model: Risk Communication.”

C. **Review** and illustrate each social factor (examples below are illustrative, not comprehensive).

1. **Message about risk.**

- a. Sources.
- b. Content.

2. **Message characteristics.**

- a. Clarity.
- b. Precision.

3. **Receiver characteristics.**

- a. Gender.
- b. Race.

4. **Receiver perceptions of message.**

- a. Credibility.
- b. Consistency.

5. **Group contextual characteristics.**

- a. Family composition.

b. Location.

6. **Community/organizational characteristics.**

a. Preparedness level.

b. Disaster sub-culture.

7. **Event/threat characteristics.**

a. Intentionality, e.g., terrorist attack.

b. Familiarity, e.g., flood vs. biological.

8. **Receiver risk perception.**

a. Degree of certainty.

b. Degree of acceptability.

9. **Receiver behavior.**

a. Mitigative adjustment.

b. Preparedness behavior.

II. Recent research examples.

A. **Distribute** Student Handout 41-2; “Research Examples”.

B. **Explain:** facilitate student note-taking.

C. **Display** Overhead 41-4; “Research Examples”.

D. **Review** each study briefly.

1. Rogers 1997b (see also Rogers 1997a).

a. **Objective:** assess impact of an event on risk perceptions.

b. **Method:** (adapted from pp. 748-750).

1) Telephone interviews, before and after.

2) Random samples of households.

a) Odessa, Texas; n = 244.

b) La Porte, Texas; n = 239.

3) Events.

a) Chemical plant fire – Odessa.

b) Lengthy incinerator siting controversy involving numerous public meetings – La Porte.

**c. Key findings.**

1) “Even though there were no significant differences before and after the chemical fire in Odessa, the fluctuations on the day of the emergency were significant.” (p. 755).

2) “. . . when changes in perceived risk do occur in Odessa during the emergency, they quickly revert to previous levels.” (p. 755).

3) “Yet in La Porte, the prospect of a proposed chronic hazard seems to form a platform for continued exposure to and accumulation of risk events that lead to increased concern.” (p. 755).

2. O’Brien 2003.

a. **Objective:** to ascertain the applicability of a traditional risk communication model to the 911 WTC attacks.

**b. Method.**

1) Quick response field work.

2) Face-to-face interviews: 3 samples.

a) Emergency personnel, e.g., police, fire, etc.

b) Citizens in area, e.g., Wall Street traders, WTC support personnel.

c) People on the street, e.g., customers, restaurant patrons, etc.

c. **Key findings.**

- 1) “This high level of urgency made the warnings to evacuate and take protective actions impossible to discount.” (p. 362).
- 2) “Given the nature of this event, situational variables had an acute salience. . . . social ties also played a pivotal role in getting the public to take protective actions.” (p. 363).
- 3) “Whereas the model of risk communication proved useful in attempting to understand this event, the model needs to be refined for a better fit with the reality of similar disasters.” (p. 369).

3. Blanchard-Boehm 1998.

- a. **Objective:** assess impacts of an official warning of increased earthquake risk to San Francisco area residents through a large-scale information campaign.
- b. **Method:** conducted a third round of interviews with persons who participated in prior studies by Palm and Hodgson (1991).
  - 1) Santa Clara County – 20 miles from epicenter of Loma Prieta earthquake (n = 106) (p. 257 & p. 259).
  - 2) Contra Costa County – 100 miles plus from epicenter of Loma Prieta earthquake (n = 82) (p. 257 & p. 259).

c. **Key findings.**

- 1) “. . . this research found support for the theoretical process of risk communication; respondents in the San Francisco Bay Area did indeed go through a series of stages in processing the non-emergency warning message of increased earthquake probabilities.” (p. 268).
- 2) “Close proximity led to higher levels of experience which resulted in higher levels of perceived vulnerability to future earthquakes” (p. 270).
- 3) “In contrast to Mileti’s 1993 findings which focus on the importance of **message** characteristics, this research

found **receiver** characteristics to be the most significant in the risk communication process.” (p. 268).

4. Major 1999.

a. **Objective:** assess public response to “. . . the highly publicized New Madrid earthquake prediction for a 6.5 – 7.5 Richter magnitude earthquake on December 2-3, 1990” (p. 313).

b. **Method:** panel survey via random sample of telephone interviewees in Cape Girardeau, Missouri (see pp. 321-322).

1) November, 1990; n = 629 (random selection).

2) February, 1991; n = 96 (random selection).

3) Panel sample; n = 290 (i.e., a sub-set who agreed in November to participate in a second interview).

c. **Key findings.**

1) “. . . women were associated with higher levels of interpersonal discussions about earthquakes with family members, friends, and coworkers than men.” (p. 324). (Pattern documented in November and panel samples, not in follow-up survey in February).

2) “Women were associated with higher levels of perceived news media influence on their perceptions of the importance of the earthquake problem in all three analyses . . . “ (p. 328).

3) “When compared to men, women talked more about earthquakes, were more confident in the information from those discussions, and perceived greater influence from those discussions on the importance that they attributed to the prediction.” (329).

4) “. . . men perceived greater influence from their discussions with official sources on the importance that they assigned to the prediction.” (p. 330).

5. Adeola 2003.

- a. **Objective:** assess “. . . factors associated with increased vulnerability of people to flood hazards and modes of adaptation and coping of flood victims . . .” (pp. 2-3).
- b. **Method:** sample (n = 300) of residential addresses (n = 1,200) in the city of Slidell, Louisiana, “. . . where flood-related garbage was picked up following TSA . . .” (TSA = Tropical Storm Allison [June, 2001]; useable returns received from 149 subjects; 50% response rate).
- c. **Key findings.**
  - 1) “About 69% indicated their families were affected a fair amount to a great deal, another 24.1% reported their families were affected a little or not much . . .” (p. 15).
  - 2) “The majority agreed or strongly agreed that floods are the work of nature and cannot be totally prevented; that flooding has their top priority; that people are partly to blame for some of the damages caused by flooding, and that the government should bear the responsibility of protecting citizen’s homes from flooding.” (p. 16).
  - 3) “While there is no statistically significant difference by race on impact, major racial and socioeconomic differences were found for access to resources, emergency beliefs, sources of relief, flood insurance policy, social capital, and flood-base elevation.” (p. 23).
  - 4) “. . . African-Americans and other people of lower socio-economic status were found to reside in relatively flood-prone landscapes with low base – flood elevation levels relative to Caucasians and people of higher socio-economic status.” (p. 23).

### **Supplemental Considerations:**

The **key message** of this section is that current research on **risk communication** clearly underscores the **need** for **refinement** in basic theoretical models. It is recommended that professors review portions of the Instructor Guide prepared by Rottman (2000), especially Session No. 28 entitled “Communicating Preparedness Information I—Principles of Behavior Change” wherein four components of persuasive communications are described, i.e., communicator, message, medium, and target audience. This model, while different in nomenclature, is consistent with the model diagramed in Overhead 41-3 (“Theoretical Model: Risk Communication”). Additional materials in the Rottman IG (2000) may be incorporated into this or other sections of this session.

Through **greater precision** in the conceptualization of nearly all variables, future research will provide **emergency managers** with the requisite **understanding** of the **complexities** and **limitations** inherent in all risk communication programs. Some professors will **expand** this section through the incorporation of **additional studies** while others may emphasize **critiques** of various studies so as to identify the contours of a broad future **research agenda**. Each of the studies reviewed above should be **placed** within the **context** of the **theoretical model** outlined in Overhead 41-3; “Theoretical Model: Risk Communication.” Finally, some professors may find it **helpful** to prepare a **comparison** of the **methods** and **key findings** from the study (Mileti and Darlington 1995) on the revised earthquake probability program in the San Francisco Bay Area to those reviewed above by Blanchard-Boehm (1998) and/or Major (1999).

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#### **Objective 41.4 Describe four general principles of effective risk communication.**

##### **Requirements:**

Use Overhead 41-5.

##### **Remarks:**

#### **I. Introduction.**

##### **A. Explain.**

1. Dennis S. Mileti and Jo Anne DeRouen Darlington (1995) assessed the impacts of a unique risk communication effort in the San Francisco Bay Area. On September 9, 1990 a newspaper insert was distributed in several languages, i.e., “The Next Big Earthquake in the Bay Area May Come Sooner Than You Think.”
2. General public was sampled randomly via mail questionnaire; n = 806 (62% response rate).
3. Federal, state, and county spokespersons were surveyed; n = 142 (included private health, safety and welfare organizations plus a purposive sample of businesses).

##### **B. Key findings.**

1. **Most people remembered five parameters or characteristics predicted for the next Bay Area Earthquake** (adapted from p. 130).
  - a. Damage is greater in certain locations and buildings.

- b. Damage is concentrated in areas of soft soils.
  - c. The earthquake has a 67% chance of happening in the next 30 years.
  - d. The earthquake will likely strike between San Jose and Santa Rosa.
  - e. The earthquake may be about magnitude 7.
2. **Most people remembered six recommended actions** (adapted from p. 132).
- a. Store emergency equipment.
  - b. Stockpile food and water.
  - c. Strap water heater.
  - d. Put wrench by gas shut-off valve.
  - e. Bolt house to foundation.
  - f. Develop an earthquake plan.
3. **Most people reported taking six mitigative actions after reviewing the newspaper insert** (adapted from p. 134).
- a. Stored emergency equipment (50% said they had done so already and another 31% said they did so after the insert appeared, yielding 81% total).
  - b. Stockpiled food and water (31%) (44% had done so previously yielding 75% total).
  - c. Strapped water heater (37% previously plus 15% after insert, yielding 52% total).
  - d. Stored hazardous materials safely (29% previously plus 15% after insert, yielding 44% total).
  - e. Rearranged breakable items (28% previously plus 18% after insert, yielding 46% total).
  - f. Put wrench by gas shut-off valve (28% previously plus 16% after insert, yielding 44% total).

II. General principles.

A. **Explain:** After reviewing the above findings plus many others, including those documenting organizational responses, Mileti and Darlington (1995) formulated **nine general principles** (adapted from pp. 142-143).

B. **Display** Overhead 41-5; “General Principles of Risk Communication.”

C. **Review and illustrate** each principle as required.

1. **Behavior can be changed.**

- a. Preparedness and mitigative actions can be increased among both the public and within organizations.
- b. Use this study as documentation.

2. **Message content.**

- a. Originate from an official source.
- b. Clearly explain risk and probability.
- c. Indicate when and where impact will occur.
- d. Specify likely events.
- e. Indicate what people should do before, during, and after the event.
- f. Specify where to get more information.

3. **Use risk maps.**

- a. User friendly.
- b. Use color.

4. **Order the presentation.**

- a. Specify what people should do.
- b. Encourage talk with others.
- c. Give instructions on how to get additional information.

- d. Earth science information goes last.
- 5. **Use a modular approach.**
  - a. Recommended action is specified.
  - b. Source for more information.
  - c. Next recommended action, followed by information source.
  - d. Next recommended action, etc.
- 6. **Personal communication follow-ups.**
  - a. Family.
  - b. Co-workers.
- 7. **Importance of the risk.**
  - a. Potential consequences.
  - b. Need for action.
- 8. **Repeat the message.**
  - a. Repeat the message again.
  - b. Repeat the message again.
- 9. **Distribute through routine.**
  - a. Use regular communication channels, e.g., newspaper insert.
  - b. Use routine community activities, e.g., county fair booth on earthquake risk and mitigation.

**Supplemental Considerations:**

The **key message** of this section is that behavioral research has documented **basic principles** of risk communication. Ask students to provide additional examples of these principles based on their past experiences, recent course field trips, and course reading.

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**Objective 41.5 Discuss four principles for attaining public acceptance of disasters as a social problem.**

**Requirements:**

Overhead 41-6.

**Remarks:**

- I. Introduction.
  - A. **Remind** students of material presented in Session 2 (“What is a Disaster?”, Objective 2.6, III). Kreps and Drabek (1996) **advocate** that disasters can be interpreted as **nonroutine** social problems.
  - B. As a type of **social problem**, various disaster relevant “claims-makers” can be identified and the strategies used to promote **public acceptance** of **threat**, **priority**, and **desired policy** can be documented.
    1. **Best example** of application of this approach was completed by Stallings (1995).
    2. He studied the “claims-makers” who have advanced the **earthquake threat** and documented the strategies and tactics used.
  - C. **Comparisons** can be made to other social problems and the **general principles** that have been used to promote public awareness and support.
  - D. **Ask students:** “What are some examples of social problems in the United States?”
  - E. **Record** student responses on the chalkboard.
  - F. **Ask students:** “OK, we have here some good illustrations of what many people would identify as a social problem, e.g., crime, child abuse, poverty, gender and racial inequalities, etc. What **strategies** do you see being used in our community by different groups to **promote awareness** of these and **support** for various public policies?”
  - G. **Record** student responses on the chalkboard, e.g., walk-a-thons; donation drives; etc.
- II. Loseke (2003) analysis.

A. **Explain:** Upon reviewing the strategies used by many **claims-maker groups**, regarding a wide **variety** of social problems, Loseke (2003) **identified** several key **strategies**.

B. **Display** Overhead 41-6; “Strategies to Promote a Social Problem.”

C. **Review** and illustrate the strategies listed with examples like the following (adapted from Loseke 2003, pp. 291-299).

1. **Increase visibility.**

- a. **Piggy backing**, e.g., focus on civil rights issues initially pertaining to African-Americans by such groups as women, gays, disabled, students, etc. (p. 293).
- b. **Domain expansion**, e.g., transport the term “slavery” to “immigrant labor”. (p. 293).

2. **Establish commonness.**

- a. **Law of large numbers**, e.g., so many rapes per day; change “rape” to “child abuse incidents,” “teenage pregnancies,” etc. (p. 294).
- b. **Middle class victims**, e.g., drug abusers victimize teens in suburban school (p. 295).
- c. **Evil villains**, e.g., media portrayal of high profile individuals, e.g., O.J. Simpson (p. 295).

3. **Horrify the consequences.**

- a. **Extreme language**, e.g., extreme poverty, drunk driving crisis (p. 296).
- b. **Extreme examples**, e.g., begin speech with one or two horror stories of missing children, child abuse victims, etc. (p. 296).
- c. **Unthinkable harm**, e.g., Oklahoma City bombing, 9-11 attacks (p. 297).
- d. **Explain:** while not discussed by Loseke (2003), it should be noted that showing images of disaster as “horrifying” can be **counterproductive** and therefore must be done very carefully. **Inappropriate use** of this strategy can cause people to be **turned off** for a variety of reasons including increased **threat**

**denial** stemming from conclusions that proposed mitigation and/or preparedness activities require too much **effort** and **distract** from other life priorities and preferences.

4. **Personalize the condition.**

- a. **Personalizing stories**, e.g., describe experiences of a battered woman (p. 297).
- b. **Celebrity testimonials**, e.g., use celebrity as victim or policy advocate (p. 297).

5. **Simplify.**

- A. **Conditions**, e.g., focus on single problem such as “bad schools,” never indicate what might be good (p. 299).
- B. **Victim purity**, e.g., baby born with AIDS. (p. 298).

III. Relevance to risk communication.

- A. **Ask students:** “Now let’s review these strategies identified by Loseke (2003) with an eye toward disaster. What examples come to mind?”
- B. **Review** several of the topics on Overhead 41-6 and supplement student generated examples as necessary.
  1. **Piggy backing**, e.g., press from single hazard to all-hazard approach.
  2. **Establish commonness**, e.g., frequency of floods and economic costs throughout U.S.A.
  3. **Horrify the consequences**, e.g., focus on potential terrorism attacks.
  4. **Personalize the condition**, e.g., emotional stories told by flood victims.
  5. **Simplify**, e.g., emphasize “purity” of children killed in an earthquake.

**Supplemental Considerations:**

The **key message** of this section is to encourage **creative thinking** by students about risk communication by broadening their perspective. Placing disaster within the **social problems context** will facilitate their **ability** to analyze parallels in campaign strategies. Such insights also will enhance their capacity to be **critical** of the **use** of such **strategies** by **other groups** within the community in the **struggle** for resources. Some professors may **expand** this section by using a single hazard like **terrorism** or flooding to **focus** the

review of each **strategy**. Others may **expand** this section through extended discussion of the **Stallings** (1995) study and/or use of examples reflecting a wide array of **social problems**. Through such **expanded** discussion, **social science students** may make **connections** to examples and theories presented in other recent courses. Such **integration** can assist in placing the **study of disaster** into the **broader context** of a **liberal education**.

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