CONF-901191--1

DE91 000624

IMPROVING RISK COMMUNICATION THROUGH INTERACTIVE TRAINING IN COMMUNICATION SKILLS

Presented to Superfund '90,
Washington, D.C.
November 26-28, 1990

Douglas A. White
Robin K. White

Office of Risk Analysis
Health and Safety Research Division
Oak Ridge National Laboratory*
Oak Ridge, Tennessee 37831

*Operated by Martin Marietta Energy Systems, Inc., under contract number DE-AC05-84OR21400 with the U.S. Department of Energy.

Improving Risk Communication Through Interactive Training in Communication Skills

Douglas A. White, MA
Robin K. White, Ph.D.
Health and Safety Research Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee

ABSTRACT

This paper describes a workshop in communication and public speaking skills recently conducted for a group of public officials whose responsibilities include presenting risk information at public meetings associated with hazardous waste sites. We detail the development and execution of the 2½ day workshop, including the development and integration of a 45-minute video of a simulated public meeting used to illustrate examples of good and bad communication behaviors. The workshop uses a mock public meeting video, participatory video exercises, role-playing, an instructor, and a resource text. This interactive approach to teaching communication skills can help sensitize scientists to the public's understanding of risk and improve scientists' confidence and effectiveness in communicating scientific information.

INTRODUCTION: THE PROBLEM OF RISK COMMUNICATION

Scientists and nonscientists frequently hold very different understandings of the nature and magnitude of risks to health and safety[1]. Scientists evaluate risk on the basis of statistical probabilities of adverse effects. Risks that are regarded as negligible by the scientific community may in fact outrage the public because they are seen as involuntary, as producing no benefit, as being inequitably distributed, or as immoral. Nonscientists typically interpret risk as the perception of hazard[2]. Nonscientists may be more likely to interpret issues

of health and risk as questions of morality or of social values[3]. This dichotomy of perspectives results in a communication gap.

Communication is interactive: two-way[4]. Offering the public better explanations of technical understandings of risk is only part of the answer. The quality of risk dialogues can be improved by training environmental professionals to interact and communicate with an audience on its own terms, by learning to be audience-focused and to communicate interactively. Scientists need to communicate <u>with</u> rather than <u>to</u> the general public. Interactive training in communication and public speaking skills encourages two-way dialogues. Such training can help environmental professionals relate to the general public in a more cooperative and less adversarial way, saving time, money, and resources which might be better spent on mitigating recognized dangers.

Communication is Interactive and Multi-dimensional

The communication of complex information about environmental health risks is too often conceived of as a one-way process of imparting knowledge from the scientist to the nonscientist at a given time[5]. Communication is not an event, however; it is an ongoing, dynamic, cumulative, reciprocal, multi-dimensional and interactive social process. The functionality of this process is influenced by social, historical, and psychological forces.

In simplest terms, communication can be seen as a quest for a shared framework of meaning, shared frames of social reference which provide the necessary vocabulary and background (i.e., context) with which to exchange, process, and understand information[6]. Communication (as opposed to a one-way system of transmission) is thus a continual process of interchange, and at

some level, interaction: sending, receiving, and responding. Communication, then, is a part of society's constant struggle toward consensus on issues of social consequence. Risk communication can thus be understood in broader terms as a debate over the application of social values to scientific or technological choices[7]. Seen in this light, it is not surprising that risk dialogues between scientists and the general public tend to revolve around questions of social values rather than technical considerations.

Communication can be shaped by interacting historical, social, or psychological factors, among others. Historical factors affecting risk communication include cultural traditions, institutional credibility, or the memorability of risk-related events perceived as similar by a community. Social effects include noise (message distortion due to the complexity of information, misinformation, or disinformation), channel effects (stemming from the suitability of the communication medium for the message and the audience), or cross-cultural factors. Cross-cultural factors in this context relate to variations in language, nomenclature, body language, interpretation, and frames of reference deriving from differences in gender, education, social status, or other factors.

Psychological effects such as perception, attitude, and stereotyping also influence communication. The risk communicator's personal understanding, empathy, attitude, and the way an audience perceives these elements, can determine the success or failure of a communication effort. Negative stereotypes held by the communicator can adversely affect his or her communication behavior and countermand the communication objective. Thus, an awareness of

social processes and of the nonrational nature of perception and stereotyping can help improve risk communication.

Risk Communication

The National Academy of Sciences defines risk communication as "an interactive process of exchange of information and opinion among individuals, groups, and institutions. It involves multiple messages about the nature of risk and other messages, not strictly about risk, that express concerns, opinions, or reactions to risk messages or to legal and institutional arrangements for risk management[8]."

The traditional scientific view of risk, however, adopts a detached, objective, macro-perspective, estimating probabilities over time and population. In contrast, nonscientists tend to view risk from a highly personalized, subjective, micro-perspective. Risk, then, ceases to be a quantitative function of exposure and potency and becomes instead a qualitative function of hazard and outrage. The challenge for the deliverer of risk information thus becomes one of expressing quantitative, ostensibly value-free information in qualitative, personalized, and socially relevant terms.

Public dialogues about risk issues often become debates over official or institutional caring, competence, credibility, or other public perceptions of institutional values. The level of public outrage surrounding a particular issue thus stems in large measure from the degree to which the affected public feels victimized by a certain risk (i.e., placed at risk by what they perceive to be an uncaring, incompetent, or untrustworthy institution).

Environmental professionals have an obligation to inform, educate, and communicate with the public about matters affecting

their health. Moreover, as an extension of the doctrine of informed consent, it is a professional responsibility to participate in this dialogue with enthusiasm and candor. The success of risk communication thus becomes not a question of producing public acceptance or agreement with the technical perspective, but rather a question of producing an interested and involved public adequately informed to the level of its own satisfaction.[9]

The Need for Training in Risk Communication

The experience of risk communication by public officials has often seemed a no-win situation for those professionals whose responsibilities include encounters with citizens and communities at public meetings associated with hazardous waste sites. In some instances, public anxiety has been unnecessarily heightened solely because of poorly planned and poorly delivered scientific communications. People with scientific or technical training typically lack training in communication skills, and it shows.

Environmental professionals often lack confidence when speaking in public. They are often unaware of their communication styles, of how they are perceived by their audience, or of the status of their credibility with the community. Their presentations tend to be too technical and too detailed. They may be insensitive to how their posture, body language, mannerisms, appearance, attitude, and bearing can negatively influence how their message is received. The result is often a presentation that seems confusing, contradictory, unfocused, or simply incomprehensible to an audience more likely in search of a simple answer to a vexing question such as: "Can I drink the water?"

Workshop Objectives

This workshop is designed to help environmental professionals become more effective communicators of scientific information and of potential health threats posed by hazardous waste sites, especially when presenting such information at a public meeting. It has been developed to make these professionals aware of their individual communication styles, to train them in organizing and delivering a presentation, to help them minimize distracting personal mannerisms, and to improve their listening and communication skills. Secondary goals are to acquaint these professionals with general concepts of communication processes, techniques of public affairs and presentation, and nontechnical understandings of health and environmental risks.

The Approach

Like communication, this workshop is interactive and interdependent. The approach is one of behavior modification through positive reinforcement and skills training through hypothetical situations[10]. Interaction pervades every element of this workshop: between the participants, between the instructor and the participants, and "introspective interaction" between the participant and his or her onscreen image. This course (Figure 1) features an interdependent combination of:

- an instructor
- a comprehensive student text
- an interactive mock public meeting video,
- a series of on-camera classroom exercises,
- on-camera role-playing exercises,
- group discussion and critique

The general principle of this course is to use the mock public meeting video as a negative example, and to use the classroom exercises and other on-camera experiences as positive reinforcement of the effective communication skills the participants already possess. In this way, through a process of presenting a neutral (i.e., not part of the class) negative example, followed by an opportunity for the student to demonstrate a better way of communicating, and in concert with the constructive criticism and positive reinforcement offered by instructors and peers, the workshop aims to produce more confident and more aware communicators of risk information. Few experiences are as sobering as seeing and hearing oneself on-camera. A basic premise of this workshop is that it is better to be embarrassed in front of one's peers than to stumble in public.

The workshop is programmed for 2½ days, involving a total of about 16 hours of scheduled activities. Unlike more technical subjects, communication training does not lend itself to a rigidly programmed "cookbook" approach. Improved communication is the result of training, individual effort, practice, and growth. A minimum of class time is devoted to formal lecture. The most effective training occurs through the exercises and discussions.

WORKSHOP DEVELOPMENT

Public meetings are only a small part of risk communication. Risk communication begins long before and continues long after a public meeting. However, such meetings are in many ways a crucible of communication, concentrating in one setting a diverse mix of interpersonal, attitudinal, stereotypic, behavioral, and perceptual influences on communication. A public meeting scenario thus offers

numerous opportunities to illustrate good and bad communication behaviors.

The teaching objective behind every aspect of this workshop is to challenge the participants to think in terms of communication pitfalls and opportunities: "How would I handle that situation? How could I answer that question better? How can I empathize and better understand this audience?" A variety of methods were developed to accomplish the workshop objectives: the interactive mock public meeting video, classroom exercises, a student workbook, an instructor, and evaluative tools.

Interactive Mock Public Meeting Video

The workshop discussions and exercises depend on the interactive mock public meeting videotape for the necessary "bad example" by which the students can measure their strengths and improvements. This professionally produced 45 minute mock public meeting videotape is a small (less than 10% of class time) but absolutely essential element of the workshop. The video spares the participants the embarrassment of being the "worst in class."

Thus, to convince the participants that they can be effective risk communicators (if they are willing to work at it), they are first presented with an example of public communication which they are clearly better than. The bad example, however, is realistic enough that the participants can relate it to their own experience or observations. The video offers examples of what not to do, and the participants are then encouraged to identify personally appropriate behaviors that are natural, comfortable (and thus confident), and believable for <u>them</u>. The effectiveness of this technique is borne out by the participants' post-workshop evaluations.

The heart of the video is a series of four scenes dramatizing a public meeting. These scenes begin with the "Pre-Meeting," featuring the townspeople and panelists waiting for the meeting to start and discussing the topic of tonight's meeting in Anytown (groundwater contamination with volatiles originating from a landfill). This segues into the "Introducing the Panel" segment, a depiction of a variety of good and bad communication behaviors by the panelists. The "Content and Presentation Skills" segment presents an inept but realistic risk communicator trying to calm the concerns of the community. Next comes the "Question and Answer Period," where several local citizens pose questions to the panel that express feelings of distrust, confusion, bewilderment, anger, betrayal, and requests for clarification. Different panelists respond appropriately and inappropriately to these questions.

Several of the citizens are characterized stereotypically to initiate classroom discussions about the possible negative consequences which can develop as a result of our own stereotyping behaviors and attitudes. In all of these scenes, even though the situations are at times exaggerated or stereotyped, the video scriptwriters have been careful not to caricature or parody these characters and situations. Workshop participants discuss these scenes in the context of what they have learned through the exercises and classroom discussions.

The mock public meeting video was painstakingly scripted to support the workshop objectives. To more tightly integrate the workshop components, each of these scenes are sandwiched between a pair of brief introductory and summary segments featuring an onscreen narrator who transfers the workshop to the classroom instructors by means of "STOP THE TAPE" graphics incorporated into

the video. These narrated segments include bullet-items reiterating the teaching points of the different segments and referring students to the instructors or to the student workbook for further information.

Classroom Exercises

The main focus of the workshop is the series of interactive on-camera classroom exercises. Each student participates in all roles of every exercise. Each participant later receives an individual videotape of their participation in these exercises for their subsequent private evaluation. In these exercises, students learn by doing. Their positive communication skills are bolstered in-class by the instructors' coaching, critiquing, and restricted didactics, and after class by the student workbook.

The classroom exercises are designed to take the participants through a progression of on-camera public communication experiences which will improve their communication confidence and awareness. The first exercise is an on-camera ice-breaker exercise designed to establish a baseline record of the students' unaffected communication styles (i.e., with none of the performance affectations of public speaking). In this exercise, each participant is interviewed on-camera in front of the class for approximately 30 seconds. The questioning begins innocently enough, with questions about hobbies, college, childhood, and the like. Without warning, some participants are "ambushed" with rapid-fire questions such as "how much is one in a million?" or "what are the limitations of animal models in cancer research?" The class then replays and discusses this exercise.

This exercise fulfills several purposes. It establishes an informal tone for the workshop which helps put the participants on

an equal footing. It also helps participants feel more at ease being on-camera and in front of an audience. The surprise elements of this and other exercises help students learn to "think on their feet." Finally, this exercise provides a beginning for students to learn how to analyze communication processes and to examine communication behaviors critically.

Other exercises are designed to allow the participants to implement techniques of listening and nonverbal communication following discussion of how these traits were used or could have been used in the mock public meeting video. One such exercise is similar to the party game "charades." It is an entirely nonverbal exercise requiring the participant to use gestures, eye contact, and realistic facial expressions to communicate various situations to the rest of the class. A few of these situations are standard charades type entries: cheering on a losing team, driving in rush hour traffic, and so on. Others, however, involve assignments such as "communicate empathy to this audience" or "confidence," or "honesty." This exercise supports several objectives: presenting participants become more comfortable and natural in their movement and gestures while standing before the group and gain insight and awareness from the role-playing aspects of the game. In addition, both the presenting participant and the audience of participants become keener observers of nonverbal cues, and the presenting participant.

Later exercises move from micro-skills of presentation techniques to more general skills of organizing a presentation, using visual aids before (such as posters) and during a public meeting, and translating complex information for a nontechnical audience. One of the most effective exercises is learning to use a

storyboard to prepare and present an effective, well organized presentation without using notes. The exercises progress from learning basic skills to combining new skills to applying those skills to the presentation of risk information. On the final day of the workshop students have the opportunity to use these skills for their "Final Exam" role-playing exercise, a scenario requiring them to present the results of a hazardous waste site risk assessment to the class in a mock public meeting.

Student Workbook

The student workbook is designed to be a user-friendly comprehensive resource text providing a theoretical and empirical foundation for the workshop curriculum, with a subtext of advice, pointers, and confidence boosters. Design features include a compact size to encourage its use in the field, and a variety of graphical tie-ins (such as bulleted items and photographs) to link it with the interactive video. While the classroom exercises focus on micro-communication (such as presentation skills), the workbook also includes detailed information on techniques of macro-communication such as communication planning, audience research, and communication theory.

Instructors and Technical Needs

The workshop design calls for two instructors who alternate between teaching and operating the video cameras. Both participate in the discussions. The workshop works best when one instructor comes from a communication background and the other from a technical background. This type of workshop requires stimulating, positive instructors who can keep the group's energy level at a high point for 2½ days. Technical requirements for the workshop include two video camcorders with tripods, two videocassette

recorders, a large video monitor, and a large conference room where the participants can move about freely. The workshop should be held in an area where noise from the exercises will not disturb others in the building.

QA/QC: Evaluative Components

In the interest of maintaining quality assurance/quality control over tl results of this training, workshop participants must take a written test at the beginning and end of the course. In addition, the workshops are videotaped in their entirety, allowing independent evaluation of classroom activities. Informal polling of the participants is an ongoing part of post-workshop evaluation. More formal polling of participants is conducted three to six months after each workshop to gauge training effectiveness.

EXECUTION: PILOTS AND EVALUATIONS

Pilot sessions of the risk communication workshop were held in April and May of 1990. The workshop participants represented a range of public meeting and professional experience, from a low of no public meeting experience to one person who had participated in 10 public meetings. The participants' experience as environmental professionals averaged 7 years, with the least experienced having worked in the field only 2 years and the most seasoned professional possessing 22 years experience. Participants came from a variety of engineering, physical, biological, and medical disciplines.

Post-workshop evaluations were uniformly high for both sessions, averaging 4.9 on a scale where 6 is most favorable. Both classes were small: the first pilot had only seven participants; the second pilot had 10 participants. The larger class size worked better. Having fewer students in a class would make it difficult

to maintain discussions and derive maximum benefit from the role-playing exercises.

Formal and informal evaluations of the two pilots by the participants stressed the effectiveness of the psychological interactions and introspections which they experienced in the workshop. As hoped, the participants acquired new confidence and better presentation skills through beneficial psychological interactions with their instructors and their peers, and through seeing themselves on video. Independent observers reported marked improvements in these skills among the workshop participants.

CONCLUSIONS

Results from the initial workshop pilots suggest both the need for such training and the validity of an interactive design featuring a mock video used primarily as a source of negative communication examples and on-camera participatory exercises. These elements, in combination with an instructor, a resource text, and group critique, can train environmental professionals to be more confident, more aware, better organized, better listening, and less technical communicators of risk information. Educating environmental professionals in presentation skills and communication processes encourages two-way interaction between scientists and the general public. Understanding and foreseeing the role of social influences on risk communication should lead to more harmonious relations between scientists, regulators, and communities.

REFERENCES

1. Kasperson, R. E., et al., The Social Amplification of Risk: A Conceptual Framework, Risk Analysis, vol. 8 no. 2, pp. 177-187, 1988.

2. Hance, B. J., C. Chess, and P. M. Sandman, Improving Dialogue with Communities: A Risk Communication Guide for Government, Division of Science and Research Risk Communication Unit, New Jersey Department of Environmental Protection, Trenton: 1988.

3. Sandman, P. M., Explaining Environmental Risk: Some Notes on Environmental Risk Communication, TSCA Assistance Office, Office of Toxic Substances, U. S. Environmental Protection Agency, Washington D.C., 1986.

4. Schramm, W., How Communication Works, in The Process and Effects of Mass Communication, revised edition, W. Schramm and D. Roberts (eds.), University of Illinois Press, Urbana, 1971.

5. Covello, V. T., P. M. Sandman, and P. Slovic, Risk Communication: A Review of the Literature, National Science Foundation, Washington, DC, 1987.

6. Osgood, C. E., ed., Psycholinguistics: A Survey of Theory and Research Problems, Journal of Abnormal and Social Psychology, vol. 49, Morton Prince Memorial Supplement , 1954.

7. Bradbury, J. A., The Policy Implications of Differing Concepts of Risk, Science, Technology, and Human Values, vol. 14 no. 4, pp. 380-389, 1989.

8. National Research Council, Improving Risk Communication, National Academy Press, Washington, DC, 1989.

9. ibid.

10. Sachsman, D. B., et al., Environmental Risk Reporting: Hypotheticals Teach Skills, Journalism Educator, vol. 43 no. 2, pp. 57-59+, 1988.

Risk Communication Workshop

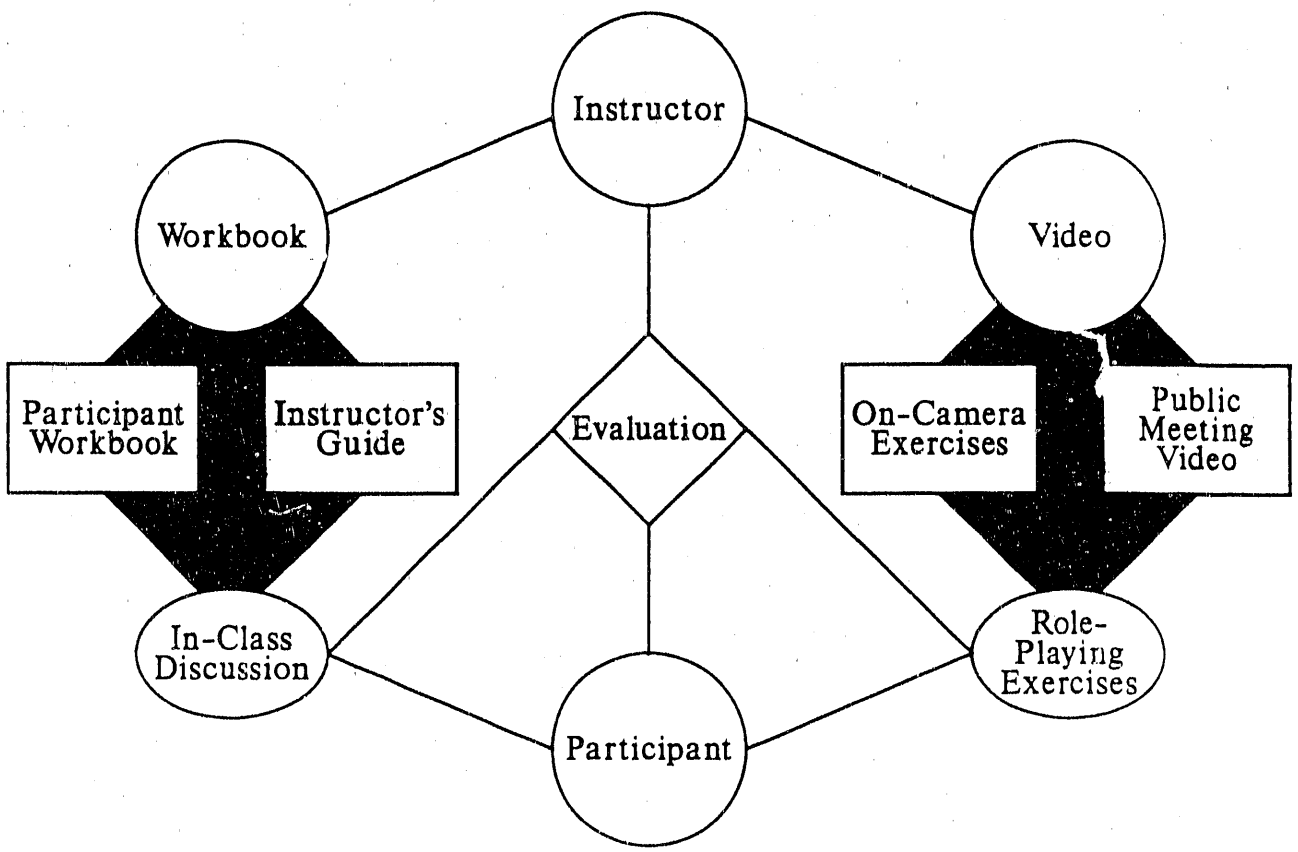

Figure 1

-END-

DATE FILMED

11 / 1 / 90