

AUDIENCE SELECTION FOR INTERPERSONAL COMMUNICATION CHANNELS IN PUBLIC INVOLVEMENT PROGRAMS

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ABSTRACT

As part of its commitment to sharing information with the public, the United States Department of Energy's (DOE's) Office of Environmental Restoration and Waste Management (EM) has designed an exhibit which is presented at over 40 scientific, environment, education, and general conferences every year throughout the country. The exhibit is staffed by people knowledgeable about EM programs, and features maps, photographs, interactive computer screens, and handout materials. Management Systems Laboratories (MSL) conducts research for DOE on improving the educational effectiveness of the exhibit materials.

The purpose of the EM Exhibit is to inform, involve, and get feedback from the public. The design, although continually updated and modified, is largely fixed -- knowledgeable representative talking to exhibit visitors, answering questions, and providing handout materials. That leaves only one major variable in the formula--the audience. This paper focuses on MSL's research in developing criteria for selecting audiences for the EM Exhibit.

INTRODUCTION

Until the 1980s, the United States Department of Energy (DOE) and its predecessor agencies were almost exclusively self-regulating. The environmental laws passed by Congress and the States during the 1960s and 1970s did not apply to DOE nuclear materials production operations. In the mid-1980s, several legal decisions required DOE to comply with these laws. DOE's waste management and cleanup activities became subject to a number of federal acts and state and local requirements, in addition to existing and new internal DOE Orders, standards, and guidance documents. Many of these regulations mandated the public's right to know about activities affecting the environment and the right to be involved with decisions concerning environmental restoration and waste management programs. DOE is faced with not only sharing information with the public and soliciting the public's input to its decision making but also cleaning up its contaminated sites according to new standards.

DOE's Culture Change

In 1989 DOE committed to cleaning up its sites and complying with all applicable laws. It also committed to changing from a cultural tradition of secrecy and distance from the public (which arose from a focus on national security and nuclear materials production) to a culture characterized by proactive public involvement, internal and external accountability, and compliance with federal, state, and local environmental laws. DOE is bringing its facilities into compliance with environmental laws, increasing independent scientists' access to DOE information, reaching out to the public through meetings and review groups, and creating new internal and external monitoring and control methods. DOE's culture change follows similar changes made by many private

industries beginning in the 1960s and 1970s. Organizations changed from passively to actively working with the public. That is, they went from responding to citizens protests to anticipating requests for information and preparing outreach materials (1). Like many managers in private industry, interacting with the public is completely new to most DOE officials and workers. It is likely that some managers in DOE are beginning to understand and apply public participation techniques, while others do not yet acknowledge its value.

DOE's budget is derived from taxpayer dollars, so its approach to public outreach has constraints not experienced in private industry. DOE's outreach activities include holding public meetings, soliciting public input to its planning document (the Five-Year Plan), and preparing informational materials to educate the public. To coordinate and improve these efforts at its sites across the country, DOE created a headquarters office to oversee these activities--the Office of Policy and Program Information.

The Secretary of Energy also established an Advisory Board of independent environmental and management professionals to evaluate public trust and confidence in DOE and finds ways to improve it. This Board found DOE has a long way to go before the public would have faith in DOE. The Board recommended DOE commit to "consistent and respectful" outreach to state and community leaders to create partnerships with the public. This outreach should be characterized by "frequent contact, complete candor, rapid and full response to questions, and assistance in increasing technical and oversight skills of the community (2)." The Board also found that "contradictory statements...undermine trust." In every case, the message content given to the public must be consistent. In addition, the Board stressed the need to educate the public on the technical aspects of DOE's programs (2). DOE managers have also concluded that finding ways to

* For example, a suit challenging DOE's self-regulating status in 1984, *Legal Environmental Assistance Foundation (LEAF) vs. Hodel*, was decided against DOE and required it to comply with the Clean Water Act and the Resource Conservation and Recovery Act as the Y-12 Plant.

** For example, DOE must comply with federal laws such as the National Environmental Policy Act, Comprehensive Environmental Response, Compensation, and Liability Act, and Superfund Amendments and Reauthorization Act, as well as interagency agreements and state and local regulations.

interact meaningfully with the public must include educating the public about DOE's waste types, technologies, and constraints *and* stimulating the public to learn more on its own about DOE (3).

Public Education and Outreach

Educating the public is not easy. The volume of information makes it difficult even for insiders to keep up with everything there is to know about DOE, environmental restoration, and waste management. For citizens, this is even harder. Absorbing this information takes more time and committed interest than most people have available today, and access to the information has been limited for decades. DOE's cleanup programs can't be explained in a 60-second TV spot or even in a feature article. The information DOE needs to communicate is technically complex and may not fit into a mass media approach using slogans or flashy visuals, such as the armed forces recruiting advertisements ("Be all that you can be--in the Army"). Even if it could, DOE doesn't have the funding for an extensive (and expensive) mass media campaign. DOE must use taxpayer dollars frugally.

People have different reactions to DOE-related information. There is a strong need for clarification and discussion. In the past, citizens, politicians, and administrators frequently met face-to-face in town meetings to share information and debate solutions (1). Whether an issue was complex or simple, face-to-face communication allowed a greater understanding of topics involving government, business, and citizens. With today's media and technology orientation, interpersonal (one-on-one or face-to-face) communication is rarer. However, as Clinton's presidential campaign demonstrated, interpersonal contact with people (like those town meetings) can have a positive impact on success. Today, citizens and administrators need to find ways to interact while discussing highly complex and technical information.

Interpersonal Communication

DOE must rely on interpersonal interactions and news coverage rather than mass media such as commercial advertising. Public relations research has shown mass communication is not the best way to educate the public. Publications, letters, and videos don't provide an audience the opportunity to ask questions or clarify information, or a chance to establish human contact and understanding through verbal or nonverbal cues (4,1). Although interpersonal communication can be time consuming, logistically difficult, and costly, it provides invaluable opportunity for feedback (4). Feedback makes it possible for the public to tell DOE what its opinions and education needs are. Also, one-on-one interactions where DOE shares information and answers questions "on the spot" can help DOE build its credibility.

An interpersonal communication approach allows the audience to select whether they want to be communicated with or not and what information they want to receive. In self-selected audiences, a greater portion of the message falls on receptive ears, and there is likely less confrontation. Audiences who join an interpersonal discussion probably have some interest in the topic, and "should therefore require less persuading, thus allowing the sender to devote more energy to information matters (4)." While some audience members may approach a public outreach program with no desire to learn (and occasionally a desire to argue), most who make the effort to participate will be interested in hearing what the intended message is.

EM EXHIBIT BOOTH

In order to provide information to the public about is cleanup programs, DOE's Office of Environmental Restoration and Waste Management (EM) created an interpersonal outreach tool--an exhibit booth which is presented at over 40 scientific, environmental, education, and general conferences every year throughout the country. The exhibit informs the public about EM activities in three program areas: environmental restoration, waste management, and technology development. Thousands of people, including educators, civic and community leaders, state and tribal leaders, technical and industry professionals, interest groups, and the general public visit the booth. People knowledgeable about EM programs staff the exhibit, which features maps, photographs, interactive computer screens, and handouts. The purpose of the booth is to provide information about DOE to the public, not to promote anything (5). Staffers are directed to provide a positive interaction with "the government" and DOE so the public has a good experience and (hopefully) learns something. A lower priority goal is to develop public interest in science so DOE (and industry) will have the educated employee resources it needs in the future.

A common assumption about public outreach and information sharing is that it can result in changed perceptions or beliefs. Research by the U.S. Council for Energy Awareness shows that while communicating with and educating the public probably can't change opinions about nuclear power plants or radiation, communication can reduce fear (6). DOE is operating under the assumption (which is validated by literature in the field of public opinion research) that educating the public will result in more meaningful public interactions. As early as 1947, public opinion researchers were asserting:

"[If] people in a democracy [are provided with] educational opportunities and ready access to information, public opinion reveals a hard-headed common sense. The more enlightened people are to the implications of events and proposals for their own self-interest, the more likely they are to agree with the more objective opinions of realistic experts" (7).

But how can DOE know whether is successfully communicates with the public? Because it is difficult to quantify changes in feelings and behavior and because DOE is focusing on educating the public, Management Systems Laboratories (MSL) has concentrated on measuring the educational effectiveness of DOE tools. In one study, we compared audience ability to learn from different communication tools and methods (8). When studying DOE's environment, a problem solving approach incorporating fixed and flexible variables must be applied.

Audience Selection

One way to evaluate the effectiveness of communication tools is to apply the formula: Audience + Purpose = Design. In DOE's case, this formula can be used to determine what is already defined and what is flexible. The flexible elements can then be evaluated and improved. The purpose of the EM Exhibit is established: to inform, involve, and get feedback from the public. The design of the Exhibit, although continually updated and modified, is largely fixed--knowledgeable representatives staff an Exhibit, talk to exhibit visitors, answer questions, and provide handout materials. That leaves only one flexible variable in the formula--the audience.

How should DOE choose its audience? Although DOE would like to reach the entire public, that goal is neither realistic nor practical. Public relations experts suggest it could be wasteful to target the entire public. Since the total public is complicated and heterogeneous, DOE must choose to communicate with groups within the public to be effective. While selecting which groups to focus on, DOE must be careful not to lump dissimilar organizations into the same category or choose too few groups to work with. For instance, politicians don't always represent their constituents, and national environmental organizations may not represent local agencies, grass roots activities, or citizens (9).

The number of people exposed to the information means little if the audience is inattentive or not very influential. The public is divided into opinion makers and opinion holders. Opinion holders make up the vast majority of a public. **Inattentive opinion holders** have neither the opportunity nor a strong inclination to become involved in the opinion-making process. **Attentive opinion holders** are inclined to participate, but lack access or opportunity. It's the **opinion makers** who strongly influence, as well as articulate and represent, the opinion of a public (1).

Public relations expert Philip Lesly recommends concentrating on just 10 percent of the target public. According to Lesly's Paradigm, on any given issue approximately 5 percent of the public immediately agree with your position, 40 percent are leaning favorably but won't do anything on their own, 40 percent are leaning unfavorably, but won't do anything, and 5 percent immediately disagree. The remaining 10 percent are the interested, open-minded (attentive) opinion leaders who drive the ultimate resolution of the issue (10).

The audience needs to have not only the opportunity to hear but also an interest in paying attention to the information presented. If the audience isn't interested in the topic, the result may in fact be damaging to the communication effort. The U.S. Council for Energy Awareness has found that providing information about nuclear waste to non-attentive audiences may bring out negative imagery that seems to lie beneath the surface without successfully addressing concerns (6, 11). In other words, if you set up the exhibit in a shopping mall, and shoppers glance at the booth as they walk by, they may go home concerned about the nuclear waste problem without ever having obtained any information about DOE's approaches to solving the problem.

Individuals somewhat familiar with nuclear waste issues will often take the time to learn more, if given the opportunity. Involvement often leads to positive interactions (4). People with a technical background can usually understand technical issues better than the general public. Some groups, such as educators and government workers, are good conduits to secondary audiences. For example, reaching one teacher may mean reaching many students. This "echo effect" multiplies the exposure of the message.

Audience Research

MSL first examined the Road Show (EM Exhibit) audiences while researching ways to improve the design of the exhibit. We considered a modular approach, where the booth layout would change depending on the audience. We examined the list of exhibit sites for 1992. DOE had selected government agencies, professional and technical societies, environmental groups, labor and industry, education conferences, and the general public. The selection criteria DOE used included size of organization for event (1,000 or more

unless environment/public), meeting frequency and size, exhibit hall restrictions, and cost (registration fee, exhibitors' fee, travel). MSL concluded that some of the organizations would be more interested in the public involvement aspects of the cleanup effort, others would focus on the technical details or DOE's organizational structure, and educators would want information they could use in the classroom.

Figure 1 is a diagram we developed to help DOE determine what information would be appropriate and effective for various groups. Our goal was to design several distinct modules for the booth that would change depending on the focus of the particular audience. The "public" modules would focus on environmental laws and citizen involvement in the program. The "education" modules would provide information that could be shared with students. The "technical" modules would provide more detailed descriptions of cleanup processes, and the "organization" modules would describe relevant DOE offices and programs. For example, if the exhibit was taken to a Fernald Residents Group meeting, most of the information would be about public involvement (e.g., how to get involved in DOE's public participation programs) and the DOE organization, with a small amount of technical information about cleanup activities. The modules for the American Nuclear Society would focus on the technical aspects of the cleanup effort.

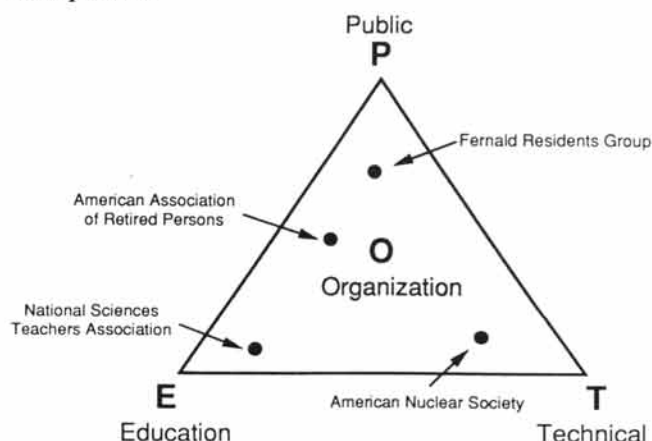


Fig. 1. Audience modules for the EM exhibit.

Although the eventual re-design of the full-size exhibit did not incorporate the module concept (due in part to the cost of recreating all the booth materials), DOE developed smaller "table-top" exhibits focusing on a variety of issues. The examination of the needs, interests, and other characteristics of the organizations on the 1992 exhibit schedule later served as a basis for our more comprehensive audience selection research.

Selection Criteria

To identify more potential audiences, first MSL surveyed lists of organizations and conferences, such as the 1992 *National Trade and Professional Associations of the United States Directory*. We used DOE's selection criteria described above and the following key words in the search.

- environment (pollution control, recycling, waste management, cleanup, remediation, water)
- education (educators, higher education, science teachers, highly educated)

- engineering (mechanical, safety, sanitary, environmental, chemical, human factors, industrial)
- government (federal, legislation, quality control, government workers, public works, land use)
- health/medical concerns (cancer, health physics, radiation effects, public health, doctors)
- information transfer and distribution
- international organizations (distribute/transfer information among nations)
- justice or cause-oriented groups (unions, women's organizations, social concerns/issues, public good)
- nuclear (safety, energy)
- public opinion
- recruiting (women and minorities, career development)
- research organizations (if related to government or science or environment)
- science and technology
- technology transfer

Then, MSL narrowed the selection criteria areas, based on our assessment of criteria already in use and our key word search. We chose four areas: impact, receptivity, education, and physical factors. Each area was divided into two or more subcategories that could be scored on a scale of one to three (with three being the highest). Because detailed information about each conference was not always available, scoring in some of the categories was, admittedly, somewhat subjective. Because using ranks of high, medium, and low in subcategories like influence and diversity was difficult, we provided examples of types of conferences DOE might attend to assist scoring. We ranked 129 conferences in the areas of business, education, engineering, environmental, general, government, science, and medical. The highest ranking possible was 39 points.

IMPACT (15 points)

Number - expected conference attendance (under 3000 = 1, 3000-5000 = 2, over 5000 = 3)

Influence - ability to affect public/government policy (American Library Association = 1, National Academy of Sciences = 2, National Conference of State Legislators = 3)

Echoes - extent group is conduit to secondary audiences (Society for Risk Analysis = 1, American Chamber of Commerce Executives = 2, National Sciences Teachers Association = 3)

Diversity - variety of interests/backgrounds in group (Association of Engineering Geologists = 1, National Education Association = 2, American Business Women's Association = 3)

Length - duration of future relationship with DOE (Leave handouts in hotel room = 1, May seek follow-up information = 2, Ask for addresses of specific DOE officials = 3)

RECEPTIVITY (9 points)

Familiarity - extent of knowledge of EM issues (Low = 1, Medium = 2, High = 3)

Interest - extent of interest in EM issues (Low = 1, Medium = 2, High = 3)

Attitude - toward EM or DOE (Negative = 1, Neutral = 2, Positive = 3)

EDUCATION (6 points)

Degree - educational level of average participant (High School = 1, College = 2, Advanced = 3)

Technical - depth of understanding of such areas as radiation, waste types, environmental laws, risk analysis, etc. (Low = 1, Medium = 2, High = 3)

PHYSICAL (9 points)

Exhibit - booth location, exhibit hours, cost, etc. (Poor = 1, Average = 2, Good = 3)

Site - proximity to EM site (No site in sight = 1, In a state with one or more sites = 2, Near a major site (Savannah River, Oak Ridge, Hanford, Waste Isolation Pilot Plant) = 3)

Location - geographic location of conference (West of the Mississippi = 1, East of the Mississippi = 2, Within 200 miles of Washington = 3)

When we applied this scale, the highest ranked conference was the National Academy of Engineering of the United States of America. This private organization meets annually in October at the National Academy of Sciences Building in Washington, DC. It was established to share in the responsibility given the National Academy of Sciences under its Congressional charter to examine questions of science and technology at the request of the federal government; to sponsor engineering programs aimed at meeting rational needs; to encourage engineering research; and to recognize distinguished engineers. This meeting scored a 3 in all categories except number, familiarity, and site. In contrast, the lowest ranked conference was the National Employment Counselors Association (1993 meeting in Atlanta), which scored a 1 in all categories except for a 2 in attitude, degree, and location.

We tested our audience selection model by having DOE exhibit staffers review the list of sample conferences we created. Then we compared how they ranked the sites based on their experience with the ranking produced by our selection system. Although there were some slight variations in the order, in general, the selections matched. In other words, sites that ranked high from past experience scored high with the system, and sites that ranked low from past experience scored low with the system.

Using the selection model as a guide, DOE prepared a list of sites for 1993. Not all high scoring sites were included because of external factors. Sometimes the exhibit is taken to a conference to support a DOE official who is scheduled to speak. And often, conference dates conflict, and DOE must choose among several conferences. The 1993 schedule reflects a shift from 1992 in some areas. The percentage of environmental and science conferences decreased slightly with a corresponding rise in education meetings. The percentage of engineering and government conferences stayed approximately the same.

DOE uses an evaluation form that is provided to all DOE and contractor employees who staff the exhibit. The form has sections for rating the reaction of attendees to the booth. MSL will compare the ratings for 1992 and 1993 to determine if, in the opinion of the exhibit staff, the new audiences are more receptive.

CONCLUSIONS AND FUTURE RESEARCH

DOE operates in an environment with more fixed than flexible variables. Thus, its public outreach efforts must be improved within an existing framework. In the case of the EM Exhibit, both the purpose and design are largely unchanging. Since DOE is committed to educating the public as part of its outreach efforts, audience selection plays a vital role. Based on the literature review and results of this ranking system development, important factors DOE can consider in choosing audiences include: audience interest in and knowledge of topic area; message content and consistency; self-selection opportunity for audience members; audience status as opinion maker, leader, or holder; and feedback opportunity.

The audience selection model developed for the full-size exhibit could possibly be applied to the table-top exhibits DOE is just starting to use. The table-top exhibits have a different purpose and use than the full-size exhibit. Because less information can be portrayed, table-top exhibits can describe fewer topics. Physically smaller, they can be used at events with fewer participants, such as public hearings, smaller conferences, and meetings. DOE is still experimenting with which designs, topics, and locations work best with this smaller interpersonal outreach tool. Different variables, however, may apply. A new audience selection model may be needed for smaller outreach tools and smaller audiences. MSL can apply the existing model to the table-top exhibits and evaluate its effectiveness for that medium. MSL can also develop a new audience selection and evaluation model for the table-top exhibits.

Each time the full-size exhibit is sent to an event, a number of handouts are sent with it. Both the type and quantity of handouts distributed at events varies. Some handouts are more effective with some audiences than others. For example, at some conferences all copies of the Environmental Restoration and Waste Management Program booklet (or primer) are collected by audience members, while at another meeting it is largely ignored. With a tool to predict which handout style and content, as well as numbers of copies, work well with different audiences, DOE could save development, printing, and shipping costs. New handouts are developed for the exhibit on an ongoing basis. For example, a brochure was recently completed on the cleanup program, and a new brochure on risk is being developed. If the way audiences select handouts was assessed and measured, new materials could be developed with these correlations in mind. Future research could include developing a model to predict and evaluate the effectiveness of different tools with different audiences. Also, a methodology could be developed to predict the right mix of tools for different audiences, in terms of style and content, as well as number of copies needed.

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