

Science-Based TV Spots: Educating the Public About Forestry

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A cooperative effort between a state educational agency and a college of forestry applied the power of public opinion research, the reach of broadcast television, and the full resources of an internationally recognized forestry research institution to inform the public about important forest resource issues. The unique combination of message design, evaluation, and wide distribution could be used by other natural resource agencies to effect significant changes in public understanding of complex resource management issues.

Introduction

Few areas of agriculture have undergone the intense public scrutiny and faced as many public relations hurdles as forestry. In the Pacific Northwest, conflicting views among environmentalists, forest industries, government agencies, and lawmakers have left the public with a confused picture of forestry practices. So, it should come as no surprise that citizens often base their opinions of forestry issues on incomplete or inaccurate information.

In response to this need for better public information on forest practices, the Oregon legislature created the Oregon Forest Resources Institute (OFRI) in 1991. OFRI's mission is

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to improve public understanding of forest practices and products; it is funded by a tax on producers of forest products and receives no money from the state general fund.

In planning its educational programs, OFRI's board of directors made a strategic decision to rely heavily on public opinion research (Solomon and Beard, 1995). Public opinion surveys and numerous focus groups have been used to identify target audiences, discover what they do and do not understand about forestry, and determine what key messages need to be delivered. Using results of that research, OFRI has sponsored forums, conferences, newspaper advertisements, forest tours for the media, low-power radio transmissions on forest topics, K-12 forestry educational programs, and extensive use of broadcast media. A key decision was also made to work with the Oregon State University College of Forestry to cooperatively produce a different kind of prime-time television message—short (60 second) messages that met the public's desire for science-based information about how their forests are managed.

The television spots described in this article were first and foremost educational in nature. It was hoped that seeing these messages would help viewers make better decisions about their personal use of natural resources, become more informed and effective participants in policy processes regarding forests and forest products, and better understand how forests and forestry affect their lives. Their purpose was not to convince viewers that forest practices of the past (or present) are inherently good or bad.

Unlike public service announcements (PSAs), these television spots were broadcast at prime time to reach the target audience more effectively. Typically, the high cost of buying television time is out of reach of higher education; so OFRI's financial resources created an unprecedented opportunity to communicate directly with Oregonians about the management of Oregon's forests.

To produce these televised messages, the Forestry Media Center production team at the College of Forestry faced an unusual challenge: a high broadcast investment, a diverse audience, and a unique format. Teamwork played a crucial role throughout the production. The team included educational media specialists, OFRI leaders, a public opinion research firm, mass media experts, and forest scientists. The production

TABLE 1:
*Design/Action Plan for Production of
Science-Based TV Messages*

Activity	Actors	Products / Deliverables
Pre-Production Assess information needs <ul style="list-style-type: none"> • Conduct public opinion poll • Conduct focus groups 	<ul style="list-style-type: none"> • Public research firm (private sector) 	<ul style="list-style-type: none"> • Survey data
Identify areas of public concern <ul style="list-style-type: none"> • Analyze poll/focus group data 	<ul style="list-style-type: none"> • Client (OPRI) • Producers (FMC) • Mass media experts 	<ul style="list-style-type: none"> • Recommendations for content areas of key concern to public and supportive of forest management
Identify broad content <ul style="list-style-type: none"> • Develop key audience perceptions and messages 	<ul style="list-style-type: none"> • Producers 	<ul style="list-style-type: none"> • Key perceptions / message list
Select and approve messages <ul style="list-style-type: none"> • Prioritize messages • Identify support scientists 	<ul style="list-style-type: none"> • Producers • College advisory group (Dean of Research, Ext. Agent, scientists) 	<ul style="list-style-type: none"> • Faculty list • Reduced list of messages
Develop message content	<ul style="list-style-type: none"> • Producers • Forest scientists 	<ul style="list-style-type: none"> • Outlines • Scripts/storyboards
Formative review <ul style="list-style-type: none"> • Evaluate scripts, storyboards 	<ul style="list-style-type: none"> • Client • Mass media experts 	<ul style="list-style-type: none"> • Approved scripts
Production <ul style="list-style-type: none"> • Produce draft videos 	<ul style="list-style-type: none"> • Producers • Forest scientists 	<ul style="list-style-type: none"> • Draft videos for review
<ul style="list-style-type: none"> • Review draft videos 	<ul style="list-style-type: none"> • Client • Forest scientists 	<ul style="list-style-type: none"> • Recommended changes
<ul style="list-style-type: none"> • Conduct and analyze Perception Analyzer™ focus group sessions 	<ul style="list-style-type: none"> • Public res. firm • Client • Producer 	<ul style="list-style-type: none"> • Real-time analysis videotapes • Go/no go decision • Recommendations for changes
Post-Production <ul style="list-style-type: none"> • Edit final video 	<ul style="list-style-type: none"> • Producer • College of Forestry 	<ul style="list-style-type: none"> • Master videotapes
<ul style="list-style-type: none"> • Final approval 	<ul style="list-style-type: none"> • Client 	<ul style="list-style-type: none"> • Approval for broadcast
Distribute Message <ul style="list-style-type: none"> • Media buy 	<ul style="list-style-type: none"> • Mass media experts 	<ul style="list-style-type: none"> • Airplay schedule (CTV & broadcast)
Summative Evaluation <ul style="list-style-type: none"> • Post-broadcast phone survey 	<ul style="list-style-type: none"> • Public research firm 	<ul style="list-style-type: none"> • Phone survey data

process was systematic, but also responsive to change as required in a project of this complexity.

This article describes processes used in designing, producing, and evaluating three one-minute television spots. It is offered in the hope that others may be able to adapt some of the methods described to inform the public on other important natural resource issues. Major steps involved in the production are outlined in Table 1, and will be discussed in more detail throughout the article.

Assessing Information Needs

Ideas leading to the content of the television spots came primarily from a public opinion poll conducted for OFRI in 1993 by Moore Research, a public opinion research firm based in Portland, Oregon.

The Pre-Production Survey

To assess the information needs of Oregonians, Moore Research conducted a phone survey of 500 randomly selected residents of the state. From this survey (Moore, 1993) it became clear that Oregonians wanted factual information on what was happening in their forests and the ramifications of current forest practices. But it also became clear that many people held opinions based on incomplete information about forests and forest management. For example:

- 49% of respondents thought that efforts to replant forests after harvest or wildfire are often unsuccessful, and will decrease the amount of forests in Oregon's future, or did not know about reforestation efforts.
- 42% of respondents thought that second growth forests look like "corn rows" of trees, and lack the diversity, structure and complexity for healthy wildlife habitat, or did not know.
- 52% of respondents either believed that timber harvesting is allowed in wilderness areas, or were unsure if it is.

Target Audience

The target audience for these television spots centered around the general public living in Oregon's larger cities. Of particular interest were educated professionals, aged 35-55, who had recently moved to the state. The OFRI survey revealed that people who are new to the state are much less

accepting of forest management activities than those who have lived in Oregon for more than ten years and that newcomers are less informed on forestry issues and practices and tend to be unaware of the importance of forestry to the state's economy. The survey also found that newcomers with college degrees are more critical of the forest products industry and forest management practices than those without (Moore, 1993).

What Did the Public Want to Hear?

To help determine key messages and key approaches, small groups of Oregon residents were asked to observe a set of sample messages, some forestry-related and some not. From these focus groups, it was determined that Oregonians were likely to respond favorably to messages that were: (1) designed for "the thinking person", (2) simple, (3) factual, and (4) rich in memorable images.

It was also found that members of the focus groups:

- were concerned about forest health,
- wanted to know whether forest managers care about forests and are committed to careful management,
- wanted to hear whether forest managers are learning and changing the way they do things—that it's no longer "business as usual,"
- lacked knowledge of specific forest practices but were interested in learning something about forestry,
- perceived some voices to be more believable than others. "Forest scientists" were believed by most respondents to be a reliable source of unbiased information. Thus, an early decision was made that these televised "teachable moments" would feature university-based forest scientists.

Some focus group participants exhibited a deep mistrust of the timber industry and tended to believe the opposite of what was said in several test messages. With this information, the development team made a decision not to target Oregonians who were unwavering in their criticism of the forest practices. Instead, the team decided to target the "don't knows"—people who had yet to form definite opinions on key forestry issues.

Shaping the Message

From the beginning, developing clear, well-balanced, factual messages that were interesting enough to capture viewer

attention was the key ingredient to success—but not an easy ingredient to achieve.

Key Viewer Perceptions and Messages

The design team used the opinion poll to help identify areas of forest management of greatest concern to the public, and to understand where audience knowledge seemed most limited. The following key viewer perceptions were identified from the poll:

- The public was concerned about loss of animal habitat caused by logging practices in or near riparian (streamside) areas.
- The public was concerned that managed forests are monoculture tree farms that lack diversity of structure, essential elements of wildlife habitat, and other values of unmanaged stands.
- The public was concerned that Oregon's forests are not being replanted following harvest or wildfire, and even when replanting occurs it is commonly unsuccessful.

From this analysis, it was decided to target three areas of forest management that concerned the public, but were often misunderstood: forest streams, wildlife habitat, and reforestation. Because the survey also revealed that people have a strong desire for factual information, the production team decided that the messages should stress ways in which science promotes better understanding of how forests work and should show how scientific understanding results in improved management of forests.

The key messages of the three-part series were to inform Oregonians of the positive role science has played in helping land managers:

- Manage forest streams to protect water quality and provide wildlife habitat.
- Manage forests as ecosystems, with the structure and complexity wildlife need.
- Successfully and promptly regenerate Oregon's forests following harvesting and wildfire.

Getting Scientists on Board

Had this been a traditional advertising campaign, television scripts would have been written to match the objectives, the talent hired, and the spots shot, edited, and distributed. But because these messages were meant to reflect current

research, the next step was different. An OSU College of Forestry advisory group was convened, composed of the Associate Dean of Research, media specialists, several research faculty, and a Forestry Extension Specialist. This advisory group provided feedback on the intended messages and identified faculty whose research was germane to those messages and audience perceptions.

College media specialists then met with the identified scientists and began to construct the messages. Key viewer perceptions and messages identified from the opinion poll were shared with the scientists, who identified aspects of their research relevant to the issues and concerns of the public. Here the producers were especially careful not to put words in the mouths of the scientists; instead, what followed was a careful give-and-take in which the scientists worked with the media specialists to generate rough scripts, or brief "abstracts" of research. The media specialists then worked with the material to extract a viable story from the scientists' efforts, and put it in a rough, 1-minute script format—a difficult challenge when faculty are accustomed to having the floor for a minimum of fifty minutes!

Draft scripts were distributed for evaluation to members of the production team, the scientists, OFRI representatives, and mass media consultants. With their experience in producing TV ads, the mass media specialists were particularly helpful with advice on visualization, storyboards, and the look and feel of the messages.

Production

After script and storyboard approval, the media specialists went into the field with the scientists, who would appear on-camera. The decision to feature non-professional talent was a conscious one: what might be lost in acting ability would be gained in credibility. Field sites were selected that best showed the research results while also being visually appealing.

Formative Evaluation

Formative evaluation is an important step in the development of any education program. It's here that designers and producers gauge program effectiveness by testing a prototype (e.g. a script, storyboard, or rough edited video) and make changes in response to feedback.

Formative review is often difficult with video-based projects because reviewers' perceptions often change dramatically depending on what they are viewing—a concept paper, a storyboard, a rough edit, or a final product. To account for these differences, feedback is often sought in several different stages and from a variety of sources. In our case, we sought frequent review from a panel of content specialists, other local media producers, members of OFRI, mass media specialists, and select members of the target audience. However, because of the high cost of broadcasting the spots, and the importance of the project, OFRI chose to use an additional approach—an electronic survey device called the Perception Analyzer™. Because this device was new to us, and because we found it helpful in assessing the effectiveness of the programs we produced, we would like to describe its use in some detail.

Attempts to analyze moment-to-moment audience reactions to visual material dates back to the early 1960s when CBS developed a primitive measurement system to gain real-time viewer information. With recent advances in microcomputer technology, group response measuring systems have become widely used in market research, feature film production, and political speech analysis. In theory, these systems permit focus groups to rate presentations instantaneously without distraction or bias (Strelchun, 1993). OFRI's decision to apply this technology offered an unusual opportunity to investigate the use of electronic group response technology—typically associated to marketing research—in natural resource communications.

The test was conducted with two groups of twenty viewers. Each viewer was given a Perception Analyzer™, a hand-held electronic unit with a calibrated dial that could be turned continuously from 0 to 100 (Figure 1). Each responder was connected by an infrared signal to a central microcomputer. Viewers were instructed to watch the TV spots and—as they focused on the message—to turn the dial on the responder up (toward 100) if they felt positive about what they were viewing and down (toward 0) if they felt negative. The microcomputer tracked and analyzed the positions of all dials simultaneously, superimposing a series of line graphs over the moving video for analysis. The lines on the graph indicate reactions to the message by age group and gender (Figure 2). The absolute values of the lines are not as important as the trends—a rising line indicates increasing interest or positive feelings while a falling line indicates the opposite.

In interpreting output from the analyzer, the production team paid special attention to what market researchers call the "five-second breakthrough," a period that is vital to grabbing viewers' interest (Figure 3). A steep curve is important because it reflects viewer interest. Failure to rise above a score of 60 in the first 5 or 10 seconds could signal that viewers might tune out the information entirely.

OFRI and the production team also tried to link any "dips" in the response curve to problematic images, editing, narration, or message design at specific points in the message. For

FIGURE 1.

Perception Analyzer™ —one example of a group response measurement input device. With the analyzer initially set to 50, the audience turns the dial up (toward 100) or down (toward zero) in response to visual stimuli. (Courtesy of Market Strategies, Portland, Oregon)

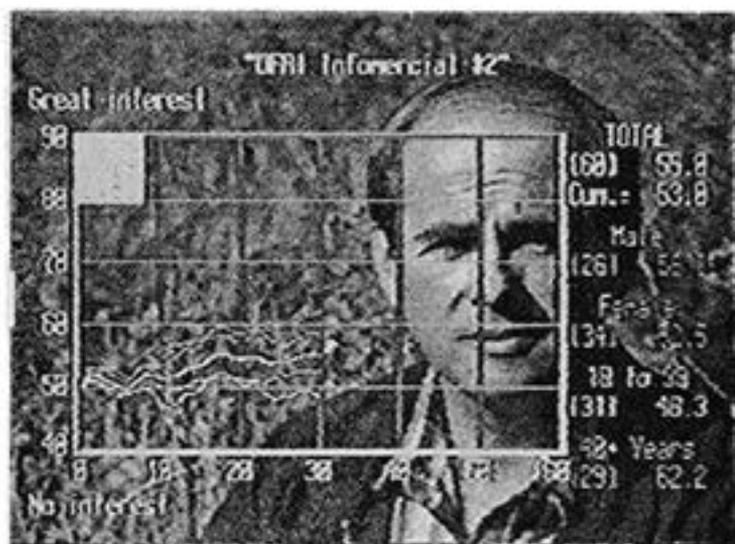


example, in the forest stream spot (Figure 3), viewer feelings were increasingly positive until the image of a hydraulic excavator working in a stream was shown. At that point there was a noticeable dip in viewer response, probably because of concern over heavy equipment working in delicate riparian areas. This created a decision point for the production team; should we attempt to allay viewer concern by modifying the message or the visual image, or was the heavy equipment a vital part of the message? In this case, the heavy equipment working in the stream was integral to the research, and therefore integral to the story. Although we chose not to modify the message, we were alerted to the fact that this segment could spawn viewer concern.

In addition to the continuous data, the Perception Analyzer™ sessions were used to obtain discrete responses to the following questions:

FIGURE 2.

Sample video output from the Perception Analyzer™—A real-time graphic overlay of audience response synchronized with the visual stimulus.



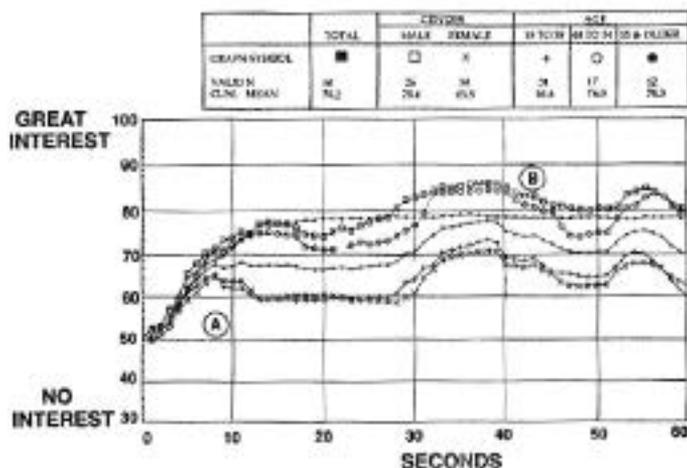
- "By watching this spot, how much did you learn about how forests are managed?"
- "How much of this spot do you think you would watch if it were to air on local television?"

Again, answers were available instantaneously, and were broken down by demographics. With the high scores given by the electronic focus group to these discrete questions, and the positive results from the continuous data measurements, OFRI decided to broadcast the messages.

It is important to understand that information collected from the Perception Analyzer™ was not substituted for professional

FIGURE 3.

Perception Analyzer™ graphic output (viewer interest over time).



Each line represents the average response of a particular age-and gender-group over the 60-second duration of the spot. All respondents started at 50 and turned their dial "up" if they found the program interesting, and "down" if they found it less interesting or had a special concern. (A) illustrates the initial 5-second breakthrough, (B) illustrates a negative viewer reaction to heavy equipment.

judgment. It was used to alert the production team to potential problems and was successful in stimulating discussion about alternative approaches and treatments.

Broadcast

The three, 60-second, science-based television spots were packaged with two, 30-second, commercially-produced forestry advertisements (also OFRI-sponsored) in a statewide media buy on both broadcast and cable stations. The spots aired on three successive Mondays in October and November 1993 during prime-time news, Cable News Network, news magazine programs, and evening game shows. The media agency based this decision on viewer demographics and on the assumption that TV audiences were in an information-gathering state of mind during this kind of programming. A second, very high-profile run also occurred in February 1994 during the Winter Olympics. Such exposure did not come cheaply; the cost of broadcasting was almost ten times the production costs for all three spots.

Assessing Impact

Assessing the effectiveness of instructional projects often consists of conducting user surveys and giving pre-and post-tests to determine whether learning occurred. Neither of these approaches was practical in this case, although the focus groups used during development of the spots did provide some feedback along these lines. Instead, each TV spot had to receive approval from several key groups of reviewers: OSU scientists responsible for the content, College of Forestry administrators who would ultimately be held accountable for the quality of the final product, the media production team, and the OFRI Board of Directors.

In the final analysis, in productions such as these it is the impact on viewers that matters the most. However, educational impact of three, one-minute, TV spots shown over a three-month period is difficult, if not impossible, to measure—too many other factors influence viewers. The closest the production team could come to assessing the impact of these programs was a second opinion poll of Oregonians conducted after the spots were run.

With these limitations in mind, a second telephone survey was conducted in April 1994 (Moore, 1994), approximately one

year after the initial poll that was used to help develop the three television messages described here. A total of 650 interviews were conducted with randomly selected Oregonians 18 years of age and older. The purpose of the survey was not to evaluate the effectiveness of the television spots, but rather to re-assess public perceptions about forest issues and the forest products industry. Because questions were used from the previous survey, it was possible to make a number of direct comparisons in attitudes. For example, the new survey revealed a 15% ($\pm 4\%$) increase in the approval rating for forest management activities in Oregon, and a 7% ($\pm 4\%$) increase in those who believed that the forest industry was doing "an excellent or above-average job learning from science to manage forests better." As anticipated, when the pre- and post-broadcast poll data were compared, the majority of the gains came from respondents who were originally in the "don't know" categories on the relevant questions asked in the pre-broadcast poll.

It would be presumptuous to assume that the TV spots were solely responsible for these changes in public opinion. Other environmental factors, such as news events, could influence these data, and the forestry TV spots were but one of several mass-media components of OFRI's efforts to inform the public. However, the close proximity of the broadcasts to the changes in audience perceptions of forest management activities suggest that a linkage exists; and the wide distribution of the televised messages made them a powerful, high-profile component. Equally important, the science-based spots were well received by *clients*, including the OFRI and its Board of Directors, University administrators and faculty, and members of the forestry community, both public and private. All were attracted to the intellectual integrity and the direct connection established between scientific research and improved forest management.

Conclusion

In carrying out a project of this scope and complexity, both the producers and clients learned valuable lessons about using mass media to inform the public on natural resource issues. They include the following: The use of pre- and post-distribution public opinion polls can provide valuable information for designing messages on natural resource issues.

- Viewers respond positively to information-rich, science-based, television spots. They want to know facts about resource issues, and they look to the scientific community for unbiased information.
- The effectiveness and positive reception of these TV spots can be linked directly to careful evaluation techniques applied throughout the development process. Interpretation and use of data from group response measurement systems, often associated with market research, is something new to agricultural communicators. Valid questions remain about just what is being measured. However, the authors believe that such systems can provide important information to the decision-making process, and encourage more exploration of their use in designing natural resource and agricultural messages.
- Efforts to create measurable changes in public opinion on natural resource issues will benefit from teamwork among public agencies, higher education communicators, public opinion researchers, scientists, and mass media experts. A cooperative working atmosphere can take full advantage of each contributor's skills to bring about an increased public understanding of natural resource issues.

Notes

(1) In February 1995, the Agriculture Relations Council awarded the "Forest Management TV Spots" a *First Place* in its category for "Public Affairs / Less than \$50,000" and the *Best of Show* for all categories. Judges were particularly influenced by the producers' efforts at evaluation.

(2) The success of these three television spots has prompted production of additional television spots by OFRI and OSU. Another 60-second spot aired in February of 1995 featured the dean of the College of Forestry and a wildlife biologist alerting Oregonians to newly strengthened laws governing management of forest streams. A post-broadcast tracking poll in March of 1995 showed that the public found the spot highly credible (77%), with a 16% increase in awareness of Oregon's new stream regulations.

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