

# Making Effective Technical Presentations

BY NAZIR LALANI AND STEVEN B. COLMAN

**F**or many career-oriented professionals, there is both a need and an honor in making technical presentations, either to a group of peers, a citizens group or elected officials. Regardless of the nature of the presentation, the speaker owes it to the listeners to plan, write and deliver the presentation in a professional, convincing manner.

At conferences, speakers should recognize that their audience members are taking valuable time, as well as spending significant amounts of money, to attend and hence are owed a honed presentation. But in any instance, when technical information is poorly presented, the speaker will lose the audience and may not persuade many to understand or support key points of the presentation.

This article discusses the most important aspects of making effective technical presentations. It was developed as a result of attending many technical conferences and observing the ingredients that make for effective and exciting presentations.

The most important items to consider before making a technical presentation are:

- The content, the audience and the environment in which your presentation will be made.
- The tools you will use to make your presentation effective and also your appearance.

## Oral Presentation

### Speaker Preparation

Technical speakers usually are invited to take the podium and present a summary of the main points of the topic. In preparation for an oral presentation, speakers should address the following issues.

**Audience.** Know your audience! When you are invited to speak, ask the sponsor how many people will be attending the presentation and their interests and backgrounds. If you are not familiar with the audience, contact those who are so that you can tailor your remarks to the level and interests of your audience. Ask yourself these questions: Who is the audience? What do the audience members have in common? Why has the audience been brought together? Why have they invited me to speak? What do they want me to talk about?

**Message.** In preparing your discussion, clearly identify what your audience needs to know and the message you want ringing in their ears as they leave. Share that message in a way that illustrates vividly why it is in the audience's interest to listen. Repeat your main message during the presentation, and remember to answer your audience's main question, "What's in it for me?" A presentation is a three-act play: a beginning, a middle and an end. Each part must be clear and distinct, but at

the same time the three parts must work as one.

**Technology Transfer.** Make sure your presentation contains at least one idea that your audience can take away and implement immediately.

**Delivery.** Do not read the paper or a summary of the paper. Tell your story by highlighting points that best illustrate your agenda. Use anecdotes to illustrate key points.

**Length.** Presentations should be as short as possible to convey the main points. Even if you are not given a time limit, most presentations should be limited to no more than 15 minutes. Audiences will forget the beginning and middle and remember only the end, or will become bored with the topic should the presentation last too long. As someone once said, "Pretend each word you speak will cost you \$100, and then see what you can cut."

**Audience Attention.** Slides should not be left on the screen for more than 20 seconds; the attention of the audience will wander if slides are left on for more than a minute. Use either 35mm slides or overhead transparencies, but not both; switching between the two is distracting. Talk to your audience and not to the screen.

**Sequence of Events.** Include relevant time frames and a sequence of events in your discussion so that the audience

has a sense of the order and time frame in which important events occurred.

**Enthusiasm.** Of the messages discerned by an audience, 60 percent to 80 percent are nonverbal.<sup>1</sup> Therefore animation, enthusiasm and voice inflection are important in communicating effectively with an audience. Don't be afraid to exaggerate these. If you don't appear interested in your paper topic, why should your audience be?

**Pace.** Nervous presenters frequently speak too quickly and should try to speak slower than in normal conversation, pausing between major points. Remember that pauses will seem much longer to you than to the audience. The greatest actors in the world have learned to speak slowly but with great animation. To help you speak at the right pace, start inhaling deeply and deliberately until your lungs reach capacity. Exhale fully and slowly. Reach a comfortably rhythm. Stay with it as you speak and you will feel calmer and more energetic. Speak plainly and avoid jargon if possible.

**Dynamic Techniques.** Using quotes and surprises help to make presentations more dynamic. The best quotes are short, memorable and best used at the beginning of the presentation. Always make sure quotations are clearly attributed.

Use surprises to draw attention to the point you are about to make. Saying something surprising can reawaken an audience. Repetition builds greater awareness of the central points of the main theme and contributes to the flow of the presentation.

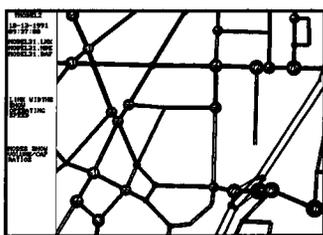
**Eye Contact.** Look at your audience when speaking. Do not gaze into the far distance. Eye contact establishes a strong bond between you and your audience and signals your sincerity. As you begin to speak, look at people in the back and center of the room. As you move to your first thought, pick someone to deliver your message to for four or five seconds. Then pause, turn and deliver a point to another person. On occasion, scope the entire room slowly, taking in the audience with one deliberate sweep. Return to

those in the back and center, then focus on individuals again.

**Humor.** Telling a joke is a good way of attracting the audience's attention, especially at the beginning of a presentation. However, be careful with humor: You do not want to tell a joke at the expense of anyone in the audience. If you are planning to use a joke, test it on friends or colleagues first to determine if it will be effective.

**Nervousness.** It is acceptable to be nervous—it shows you care about what you are doing. Nervousness is simply energy; the key is to control that energy and appear calm. Put it to work for you. Remember that you know more about the topic than the audience—that is why you are there!

**Audiovisual Equipment.** Make sure the conference sponsors know what equipment you will need well in advance. Check the amplification system and become familiar with operating it before the session. Make sure it is loud enough that



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everyone in the room will be able to hear you.

**Rehearsal.** Rehearse your presentation at least three times before arriving at the conference. If possible, use an empty meeting room or auditorium with your visual aids. This will help you to familiarize yourself with your slides and overheads, as well as ensure proper orientation and order. Pay attention to weak points in your delivery and work on improving them.

**Role.** Be mindful of your role as an official spokesperson for your organization.

### First Impressions

Your audience will judge you by their first impression, including your physical appearance. Therefore, create a strong opening. It is also important to wear the correct clothing and have proper grooming. Business attire that avoids bright reds and all whites is the best. Also, avoid heavy, bulky, baggy or shiny clothes, and loud stripes. Large noisy jewelry can be distracting to the audience. It is better to dress slightly "up" from the level of your audience to show your respect.

### Gestures

Gestures help to reinforce your verbal communications. They assert your authority and signal to an audience the impact of your words. If you clasp your hands in front of you or let them hang at your side, you are visually telling your audience that you are not ready to take control. Without any gestures, you may appear nervous and uncertain.

As you make a presentation, keep your hands waist-high. Audiences won't believe you if you touch your face or if they cannot see your hands at all. Let your hands bracket your ideas. When you come to an issue of major concern, pause and hold up a hand. It's a natural way of signaling that you are about to say something of greater importance than what has gone before. Remember that larger audiences need larger gestures. Gestures can give rhythm to sentences, creating pauses so that everything does not run together. No hands in pockets. Stand tall. Don't rest on one hip. It is important to remember that movement should be natural, realistic, direct and smooth. Swaying, playing with the face and hair

or fiddling with clothing can be distracting to an audience.

### Answering Questions from the Audience

At the end of a presentation, there typically is a question-and-answer session that is controlled by the moderator. When answering questions from the audience, it is important to bear in mind the following advice.

**Be Direct.** Do not be evasive. Evasiveness is usually interpreted as a signal that you have something to hide. Compliment the person asking the question. Don't apologize. Use statements beginning with "I" if there is significant controversy.

**Be Positive.** Be positive, not defensive; tell the truth and be candid in response to questions. Don't attack other organizations or competitors.

**Be Confident.** Show confidence. Take a small step forward when giving answers.

**Eye Contact.** Don't hide behind the podium, and always look at the person asking the question. Try to keep answers to less than a minute.

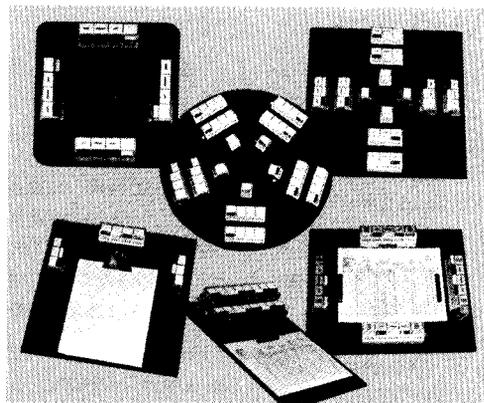
**Control Anger.** If a member of the audience makes you angry, count to 10 before responding and avoid an argument. Be careful of nonverbal cues (crossed arms, not looking at audience) that can increase the level of confrontation.

**Interruptions.** If interrupted in the middle of a thought, proceed with your original answer before changing the subject. Avoid playing verbal "ping pong"—broaden your answer to make your point.

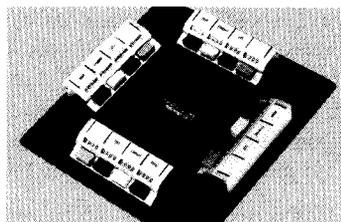
**Additional Information.** If you don't know the answer to a question, say so and offer to find out, and then provide the information as quickly as possible.

### Visual Aids

Technical presentations can be made more effective with the use of visual aids. Audiences typically assimilate



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# SCREENING CRITERIA

Eligibility

Planning Consistency

Financial Feasibility

Funding Distribution

Figure 1. Sample of an acceptable slide format.

late 80 percent of their information visually. Overhead transparencies or 35mm slides are both acceptable. In some circumstances, videotape may also be used effectively, though it frequently makes an oral presentation unnecessary. Remember: slides and transparencies are intended to enhance your presentation, so avoid overusing them. Prepare your presentation then select points you wish to emphasize in your visuals.

**Use of Slides.** Slides should present information that re-emphasizes what is being presented verbally. Use the slides or overheads as "prompts" for your presentation, but don't read each slide. Slides are most valuable when portraying a complex, real-world situation, such as intersection conditions of sight-lines from a driveway.

**Slide Format.** Each text slide should contain no more than five or six lines of 18 point or larger text, and a total of no more than 15 words. Slide text should fill the screen, and type faces should be consistent throughout the presentation. Avoid the use of all uppercase, as it is harder to read. See Figure 1 for a good example.) If smaller text containing more words is used, the audience will be unable to read or be distracted trying to read the small

text. Sans-serif bold fonts such as Helvetica are more readable. Good slides are seldom made from the tables or figures intended for publication with a paper.

**Slide Colors.** White or yellow letters on a dark blue or black background are the most visible colors for 35mm slides. Black letters should be used for overhead transparencies. Red and light blue letters should be avoided, as they are difficult to read. Avoid more than two colors a slide and the use of decorations such as tick marks and grids.

**Location Map.** In discussing a project in a specific place, include a map showing the location of the project at the beginning of the presentation.

**"Real Life" Slides.** In between slides of text, slides of relevant real-life situations should be included. This will help retain the audience's interest. Examples of real-life slides include road construction, building designs and computer visual simulations (Figure 2).

**Tables and Charts.** Tables and charts should be legible from the back of the room; otherwise they should be excluded from the presentation. Pie charts should be limited to no more than six slices, and no slice should show less than 10 percent of the total.

Keep multiple bars and stacked bars to a minimum when using bar charts (Figure 3).

**Slide Orientation.** All slides should be viewed through a projector before being used for a presentation to make sure they are in order, oriented correctly and legible. Backward or upside-down slides make a presentation seem amateurish, and can add to your tension level.

**Projector Equipment.** Know how to operate the projector equipment before the session starts. Ensure that the tray fits the projector and that the projector is properly aimed at the screen and in focus before the beginning of the presentation. Again, make sure all sides are oriented correctly, and that the remote control works properly. Use 80-slide trays, as they are less likely to jam than ones that carry 140 slides. Always have a spare projector bulb handy. Turn off the projector when you are finished with your slides.

**Overhead Projector.** Layer your overheads with paper between each transparency to prevent their sticking to each other. View the first transparency through the projector before the presentation to make sure you know how to orient the transparencies so that they are legible to the audience. Lay a pencil on the transparency to point to specific items. Turn off the projector as soon as you are finished with your visual aids to encourage the audience to focus on you. Do not block the screen with your body.

## Written Papers for Conferences

It is rarely possible to make a technical presentation that covers all the necessary information relevant to the topic being discussed. Even if that were possible, it is rarely possible for an audience member to remember all the essential details of the presentation. Therefore, a well-written paper that can be included in the conference proceedings or compendium should be prepared well in advance of the conference. In the absence of specific requirements from the conference sponsor, the paper should be  
*See PRESENTATIONS, page 37*



**Figure 2. Slides of relevant real-life situations help to retain audience interest.**

*PRESENTATIONS*, from page 32 prepared according to the following guidelines.

**Title.** The title of your presentation should contain the “punch line” of your presentation. The front sheet should list the title of the paper, the date, and the authors and their professional affiliations.

**Organization.** The paper should typically contain the following sections: Problem Statement; Discussion; Conclusions; Recommendations; References; Tables; and Figures. The primary finding of the paper should be stated in the introduction. Support and additional details can come later.

**Outline.** Always start a paper by outlining it first. It is much easier to see the logical organization between elements of the presentation.

**Length.** Papers should be no more than eight single-sided pages with one-inch margins and no page numbers. The text should be a minimum font size of 10 points. ITE and other organizations typically provide authors with specific requirements.

**Abstract.** Abstracts are useful and should be provided even if not required by the publisher of the paper. An abstract should concisely convey the purpose of the paper and, if possible, the results. With most papers now

being entered into computerized databases, try to use as many key words as possible in your abstract. The abstract should generally be 200 to 300 words (about a half page, typewritten). The abstract should tell your potential reader whether it is worthwhile to read the full paper.

**Biography.** Prepare a one-paragraph biography of not more than 10 lines that can be used by the moderator to introduce you.

**Content.** Become reader-based and write to the audience. Put yourself in the reader’s shoes by thinking about the reader’s needs. The final draft should be edited carefully for all unnecessary words. Other good ideas on effective writing can be found in the April 1994 issue of *Western Cities*<sup>4</sup>.

**Charts, Photos, Figures.** Use effective, clear, concise camera-ready art. Do not tape art to another sheet of paper (see Figures 2 and 3).

**Format.** Use formats, headings, enumerated lists, asterisks, bullets, bold face type and capitalization to provide visual clues to the reader.

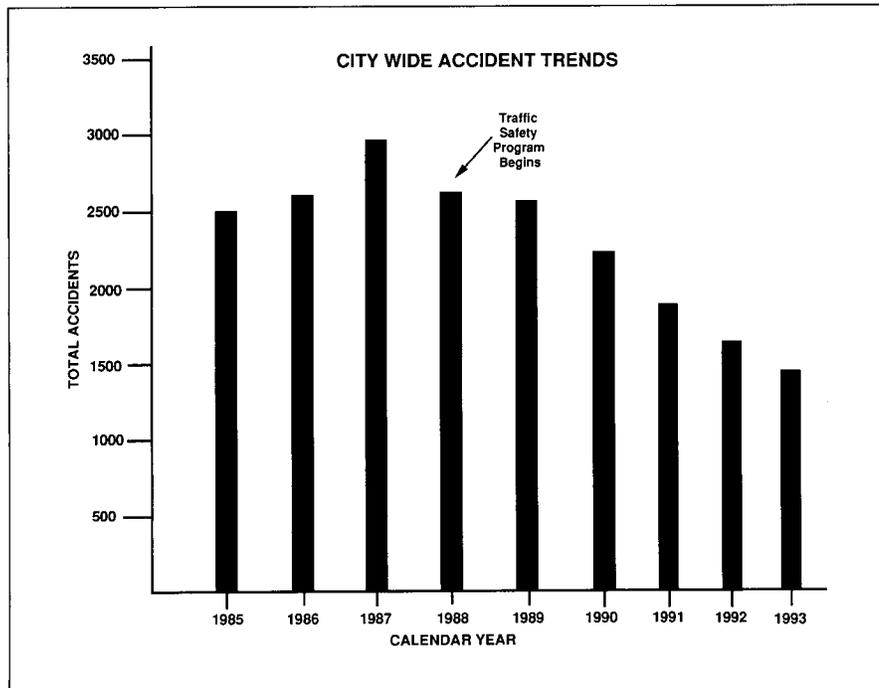
## Moderators

Moderators or presidors are frequently required at conferences sessions or public workshops to coordinate the session or workshop with other participants in advance and run the technical sessions. To accomplish this task effectively, moderators should bear in mind the following:

- **Present** the major theme of a specific session or workshop
- **Introduce** each speaker and coordinate the order of the speakers
- **Control** the length of each presentation as well as question-and-answer exchange between the speakers and audience.

If invited to moderate a session, you should bear in mind the following:

**Pre-Session Meeting.** Plan a meeting a half-hour before the session is scheduled to include the session’s speakers. The purpose is to introduce session participants to each other, distribute name signs to speakers, obtain any missing information for speaker introductions, inform speakers when questions will be allowed from the audi-



**Figure 3. In slides with bar charts, keep multiple bars and stacked bars to a minimum.**

ence, and cover any final session logistics. This meeting also will allow presenters to check their slides to make sure they are oriented correctly and placed in the carousel in the correct order and then provide the slide carousel to room captains.

**Brevity.** Be as brief as possible when introducing the theme of the session and each speaker, but make sure the audience and speaker feel comfortable and welcome.

**Biographies.** Have copies of the biography of each speaker before the session begins. Each speaker introduction should be less than two minutes.

**Speaker Order.** Unless there are extenuating circumstances, keep the order of presentations the same as in the printed program. Avoid having more than four speakers in a one-and-a-half hour session or there will not be enough time left for questions.

**Pre-Session Preparation.** Read the paper to be presented so you are familiar with the subjects that are being presented and the presenters' biographies.

**Presentation Length.** Inform speakers of their time limit. Indicate how you will warn them that time is nearly up.

**Audiovisual Equipment.** Make sure all audiovisual equipment is accounted for and operating correctly. Ensure the microphone works properly so that everyone can hear the speaker. The room captain usually can assist in making sure everything is ready.

**Warnings.** Provide a warning three minutes before the end of the speakers' time to let them know they have to finish their presentations. An additional one-minute warning is frequently helpful. Have the room captain operating the auditorium lights and the audio-visual equipment keep track of the time and raise yellow and red flags that are visible to the speakers to provide warnings.

**Termination.** If speakers go significantly beyond their allocated time, find a diplomatic way of letting speakers know they must terminate their presentation. This may include breaking into the presentation if necessary or bringing up the auditorium lights if they have been darkened for visual

aids. Moderators too frequently fail in this task, resulting in a drastic shortening of the last presentation.

**Prepared Questions.** Moderators should prepare questions to ask the speakers ahead of time to stimulate discussion at the end of the final presentations.

**Repeat Each Question.** Always repeat each question from the audience so that everyone understands what is being asked.

**Questions and Answers.** If a member of the audience becomes argumentative, intervene and indicate that time will be available at the end for the audience member to address his/her questions to a specific speaker.

## Conclusions and Recommendations

The above guidelines will help you deliver effective presentations that are well received and appreciated by members of your audience. ITE2 and TRB3 also provide useful quick tips and checklists that speakers can consult. The bibliography/additional information section below contains sources of other information that you can use to help improve your presentations.

The guidelines for written papers and visual aids are straightforward and relatively easy to implement. Some of the suggestions for oral presentations are more difficult to practice. Some people have a natural talent for public speaking, while others may be uncomfortable or have a voice or personality less suited to public presentations. In that case, practice is the only teacher, and you will only become better if you consciously seek opportunities to test techniques and improve your presentation skills. Progress may come slowly, but be assured it will come.

## Electronic Bulletin Board

More information on making effective presentations is available on the ITE Electronic Bulletin Board System by calling 1-800/982-4683 or 202/863-5487.

## References

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2. Institute of Transportation Engineers, "Quick Tips-Preparing and Using Presentation Visual Aids." Available by calling 202/554-8050.

3. Transportation Research Board, National Research Council, "Information for Authors and Speakers," published annually. Call 202/334-2394 a for a free copy.

4. Jones, M., "Words Count: Five Effective Strategies for Effective Writing," *Western City*, April 1994.

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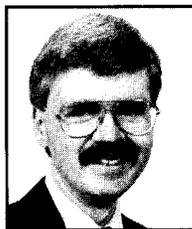
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