Chapter 23

How to Present a Paper Orally

A Comparison: Written Versus Oral Papers

An oral presentation is far different from a paper to be published. If you plan to present your paper orally, remember the special limitations of your listeners. Whereas the reader of the printed page has the freedom to scan the headings and sections, to skip material at will, to proceed at any desired speed, and to re-read when necessary, listeners in your audience have no such freedoms. They depend on you, the speaker, to stake out a path to be traveled at a sensible pace. The expression "captive audience" is not a misnomer.

Because of these inherent differences, your written manuscript (which may be entirely appropriate for a conference proceedings or a journal) can fall flat when you attempt to read it to your audience word for word.

If in your oral delivery you choose to be "wedded" to the manuscript, two kinds of conflict arise that will be grounds for divorce. The first lies in the *pronounced* distinction between spoken and written English. The second results from the opposing purposes of oral presentation and formal writing. Your understanding of these distinctions will be reflected in the character of your talk.

The characteristics of the oral paper depend first on your voice. Your manner of speaking conveys certain impressions that do not come across in your writing. Voice inflections (changes in either pitch or loudness) give an added dimension to your paper, providing another way to emphasize the important sections and to subordinate the ideas in others. Your attitude is another parameter of speech that is quickly sensed by the audience. Enthusiasm about your subject is infectious, and lethargy is equally so. Use whatever words you may, you can never hide your own boredom from your listeners.

Even more important than speaking mannerisms are certain other aspects of the oral paper. These depend on your empathy for the audience, as contrasted with empathy for readers. Evidence of your feeling for the audience, for example, is the occasional gesture—a natural accompaniment of speech. When you are showing slides or foils and point to parts of a diagram on the screen, your explanations are direct and immediate. The text in a printed paper, on the other hand, is less direct when it refers to the figures. In that case the reader must look back and forth from figure to text to glean the details.

The amount of detail that is appropriate for slides may differ from what you provide in figures for your printed paper. The decision on how much detail to include depends on your sensitivity to what the audience can see and understand, particularly those seated in the rear. When the conference does not publish a proceedings for future reading, it is unfair to illustrate your talk with complicated slides, loaded with labels and legends. Not everyone in the audience will have a camera to photograph your slides for future study.

Still another aspect of the oral presentation is its flexibility. Unlike the written paper, the length and content can be adjusted according to feedback from the audience. When your listeners are shifting uneasily in their chairs or straining to see with drooping eyelids, it is time to speed up your presentation, to skip some of the details, and to put more life into your voice. When you see them sitting on the edge of their chairs, waiting to catch every word, you know it is time to slow down and perhaps give more details than you had planned. Be careful, however, to stay within the time slot scheduled for your presentation.

Usually your talk will be shorter than your published paper. This limitation is important: it emphasizes two more differences between oral and written versions. The first is that oral presentations have rather rigid time allocations, especially for papers given in panel sessions at a conference. If you overrun your time slot, you shorten the time available for a discussion period. Journal manuscripts are not so limited. The second difference is the attention span of listeners versus that of readers. In the oral version you must assume that your audience will tire of long-winded explanations and voluminous data. Your presentations should be short and to the point, illustrated where necessary on the projection screen. The written version, having additional supporting material, tends to be lengthier and to contain more data for future reference.

Publishing a report or journal paper has a special value. It becomes a matter of record; you become known for your work; your professional activity becomes recognized by your peers. Presenting a paper orally offers certain additional advantages. It is your opportunity to meet with engineers in your field, to trade notes on newly developed methods and on recent trends, and thus to broaden your horizons. And in the discussion period

after your talk you also have the advantage of immediate peer reaction. Your presentation, then, is somewhat different from your published paper in the way it contributes to your professional development.

For these reasons, it is worthwhile to plan your oral paper separately, to design it for its special purpose, and to find out beforehand the makeup of your audience, as suggested by Barnow.[9]

Preparation of the Oral Version

There are three alternatives to reading your paper verbatim: glancing occasionally at a brief, topical outline; using a stack of note cards; or simply talking from slides, foils, or a flipchart. The last method—building your talk around visual aids—is probably the easiest. Because most engineering papers depend on charts, tables, or photographs for the central points, your audience anticipates that treatment and will be comfortable with an illustrated talk. Moreover, you will be using your visual aids as cue cards and can then *talk* to the audience without reading notes verbatim.

The first consideration for the structure of your talk is whether a written version will be available to your listeners either as a proceedings paper or a handout, or possibly as a future journal paper. If there will be no written version for reference, your oral presentation should be long enough to provide all the needed technical details.

The second consideration is the way you are to shape your talk for three overlapping purposes:

- to fit the technical program
- to meet your own objectives
- to match the interests of the audience

The program director or session moderator can let you know about the desired treatment and limitations of your subject and, most important, about the type of attendees and their average technical level. Into this reference frame you must fit the subject material that will fulfill your own purpose, whether it be to describe a system, solve a problem, develop a theory, or take sides in a controversy. Remember that your material, no matter how well presented, will be a disappointment to all (including yourself) unless it is tailored to fit the program and the audience.

When you are planning the various portions of your talk, deciding what to include is half the problem. Deciding what to omit is the other half. Assume, for example, that your presentation is limited to 20 minutes and you have a longer written version for the conference proceedings. The 15 typewritten pages, 250 words per page, contain a total of 3,750 words. If you were to read that version at an average speed of 125 words per

minute, the time required would be 30 minutes. But in your 20-minute program slot you can use only two-thirds of the written content.

In this case you would need to cut at least one-third of the material. Remember also that listening is slower than reading; the listening audience cannot absorb as many details as readers. Therefore, it is best to delete portions that you feel will be less interesting and less suitable for the attention span of an audience. Omit the kind of detail that a listener, if sufficiently interested, can find in the proceedings. In addition, it is wise to allow extra time to define special terms in your talk. Listeners, unlike readers, cannot stop to look up definitions.

The most meaning in your presentation will probably be found in visual aids, which have a much stronger effect on the viewers than do the figures in a printed paper. A slide projected on the screen is a powerful magnet for attention because it is the only thing in view. One of your crucial decisions in using such a potent information display is your choice of illustrations. In any misguided effort to sustain interest with trivia or entertaining distractions on the viewing screen, you are defeating your main purpose.

Some of the more important figures in the written paper can be reproduced and made into slides or foils for your talk. However, any figure that seems too complex for projection on the screen should be redrawn and simplified. One criterion for simplification is the technical level of your audience: the lower the level, the less detail is appropriate.

If you build your talk around a series of slides, you will probably find it necessary to use connectives and liaison devices more liberally in your talk than in the written version. In the latter, some of the figures are probably not interrelated because they are separated by long sections of text. A smooth oral presentation should be heavily interspersed with expressions relating one slide to the next, such as

> In contrast to the sharp changes in the slopes of these curves, the next slide shows an increased stability . . .
>
> Another example of the functions in Figure 6 is shown in Figure 7, which illustrates the use of the system in . . .
>
> This photograph is an external view of the device, and the next slide is a line drawing indicating the structural details . . .

Such connective signposts help the audience stay on the road with you. If you do not use connectives, and especially if you switch abruptly from one topic to another, your listeners will begin to drop by the wayside. Some will be wondering where to go for lunch. Others will be looking over the list of speakers that follow on the program. Still others will quietly snooze.

To capture and maintain interest, then, your visual aids should be selected to illustrate important points, designed for the technical level of your particular audience, and arranged in a carefully connected sequence so that your presentation builds up interest to the end, when you offer conclusions or a summary.

After you have prepared the talk, rehearse it aloud. The best way, by far, is to use a tape recorder. Listen to the entire presentation. The defects in speech mannerisms will undoubtedly surprise you, because listening to yourself on the loudspeaker is far different from hearing your voice through the bones of the head as well as the ears. The feedback of your own word sounds provides you with an ideal opportunity to analyze your speaking habits. You also need an entirely different kind of feedback. Make a dry run of your talk for your colleagues and ask for their reactions to both speaking technique and technical content. These two trial runs are your insurance against a poorly prepared and badly timed presentation.

Delivering Your Talk

On the day of the talk, get to the conference room a few minutes early, equipped with your notes, slides, foils, charts, or other aids, carefully numbered and in proper order. In case there is no session moderator, room attendant, or audio-visual assistant, check the facilities yourself: projection equipment, spare projector bulb, microphone, position of lectern, and operation of room lights. Doing this before the audience is fully seated will save time and prevent confusion when you are ready to start.

As the starting time arrives, you may experience stage fright. Many people, even the most experienced speakers, have this problem during the first few minutes. The best way to face stage fright is to accept it as a natural reaction and to realize that the associated tension is not altogether undesirable. If you are too relaxed, you will be less alert and perhaps even less motivated to do an outstanding job as a speaker.

Nevertheless, you should find ways to minimize stage fright so that it does not get out of hand. This frustrating emotion is basically a fear of being inadequate when facing an audience. The obvious antidote is to bolster your self-confidence in several different ways. The first has already been discussed: prepare your talk thoroughly and fine-tune it for its purpose. In addition, you should make prior contact with members of the audience. Before your talk, strike up conversations individually with several audience participants. You will probably develop the feeling that they are on your side. You will sense that they want you to succeed. As a result you will be reinforcing your feeling that you have something important to say and that your presentation will be filling a need. When you ascend the podium, show your new confidence by glancing at the audience with

a smile of anticipation. That attitude is always infectious, and the audience will tend to relax and return your smile. As a member of a "mutual admiration society," you should find your stage fright dissipating to a manageable level.

When you face an audience, you should be conservatively dressed. Loud colors or flashy jewelry are a distraction. Avoid, also, any posture or movement that distracts attention. Stand comfortably erect. Do not slouch over the lectern. If you do not know what to do with fidgety hands, let them hang loosely at your sides.

Other kinds of movement are not at all distracting but instead provide emphasis and variety to your presentation. Moving occasionally away from the lectern serves to stimulate audience interest when it is lagging. Natural gestures of the kind you ordinarily use in conversation will help drive home a point. (Dramatic and exaggerated gestures should be avoided.) Pointing to features on the screen or flipchart helps to focus attention and adds life to your talk.

When showing visual aids, never turn your back on the audience. It is best to maintain the all-important eye contact with your audience, which will in turn give your listeners the feeling that you are talking to them directly. Even in a large hall, an occasional direct glance at people in various parts of the room serves another purpose: the eye-to-eye rapport helps you to sense their reactions and take cues from their behavior.

Your command of the speaking situation on the podium is an intangible quality called *presence*. When you have developed an attitude of full commitment and self-confidence, and an interest in the audience as well as your notes, your presence becomes a strong asset to the speech.

Speech

Presenting your paper orally gives listeners the advantage of hearing your personal interpretations. This is especially true when you *talk* to the audience instead of mechanically reading your paper aloud. People are more comfortable with the easy flow of a semi-conversational style than with the tight constructions of formal writing. Both volume and pitch of your voice tend to rise and fall in the patterns of language. Your normal variations in speed also add shades of difference in meaning. These changes in volume, pitch, and speed are most useful but should not be overdone. Your speaking style must not be oratorical. The subtleties and nuances in ordinary speech will not be lost on your listeners.

Unless you have a great deal of experience in public speaking, you will need to have conscious control over parameters such as speed. If you are nervous when you begin to speak, start off slowly and deliberately before you build up to your normal speaking pace. The tendency is to talk too fast. The rapid speaker sometimes adopts a high "twangy" pitch, which

generates tension in the audience, and is less easily understood than a slower voice in lower register, which has a more pleasing resonance. At rates higher than about 160 words per minute, your articulation begins to lose precision. To pronounce each word clearly, the tongue, lips, and teeth have to move freely and without tension. Unless you have better than average articulation skills, you had better stay with the medium speeds. The extremely slow speaker usually drones monotonously before an impatient and frustrated audience.

The least obvious but most effective way to vary your speed is to talk faster when you wish to arouse interest and a bit slower when you sense that a significant point needs to sink in and be understood. For most of us the typical range of speaking rates is 120 to 160 words per minute.

A loud voice is not necessarily the best attention getter. When you come to a part of your talk that deserves emphasis, try dropping your voice just a bit. It will be better to have your listeners leaning forward occasionally to catch every word than to subject them to a continuous blast. If you are using a microphone on a stand, speak in normal tones. When you abandon the microphone to discuss visual aids, remember to speak loudly enough to be heard in the rear of the hall.

You customarily adapt your speaking mannerisms to the subject and to the portion of the work you are discussing. The sections of the paper where you need to be the most sensitive to speaking style are those where audience interest is highest—the beginning and the end.

Openings and Closings

Speakers like an attentive and interested audience. When you start your talk, you are the center of attraction. Those seated before you not only expect you to bring your subject into clear focus but are also appraising your personality. When you seem to be approaching the end of your talk, they expect you either to summarize or, if you are to offer an analysis or recommendations, to give them the punch line. In openings and closings do not disappoint your audience.

A good way to begin is to come immediately to the point. Define your purpose, outline the scope of your paper, and show what you intend to develop.

Some speakers prefer at the very start to delay the prepared talk while they indulge in remarks that will place the audience at ease. An anecdote or a light-hearted aside can put listeners in a receptive frame of mind, but you can use witty or chatty openings successfully only if they are a natural expression of your personality. A straitlaced speaker who attempts a weak joke to get the audience in a good mood is off to a terrible start. A flamboyant speaker who opens with off-color humor can also derail the presentation.

Your best approach is to state your case and to establish good relations with your audience. If the talk will be in any way controversial, or if you happen to face a hostile audience, stake out some common ground. Be tactful. Remind them of what they already know; discuss the areas of agreement; point out the respects in which you are on their side; and then gradually bring into play your special point of view.

As you near the end of your presentation, you will probably make a remark like "In closing, I have shown . . . ," "I will now summarize . . . ," or "In conclusion, I recommend that . . ." At this point, listeners who had been fidgeting or dozing will suddenly look up. You have forced their attention.

A weak ending is deadly. Never give the impression that you are exhausted or apologetic, that you really have nothing more to say, and that you merely wish to thank the audience for its kind attention. Because the end of your talk makes a much stronger and more lasting impression than the beginning, do not hesitate to summarize your best points and to show why they are significant. Another way of strengthening your closing remarks is to acknowledge the limitations of your design or your results and to point out the aspects that are not yet understood and those that have to be studied or developed further. Such honest and candid comments tend to take the wind out of the sails of your critics.

The Discussion Period

If your talk is followed by a session of questions and comments from the audience, you have the opportunity to add information you might have omitted, to clarify points in question, and perhaps to defend your paper against criticism. You should be able to anticipate some of the questions beforehand and come prepared with answers. A good way to fortify yourself against stickler questions before the meeting is to have a dry run with colleagues, as suggested earlier in this chapter. At that time you can practice answering the probing questions of friendly hecklers.

The discussion period after your talk can be especially interesting as an indicator of how well you have reached your audience. The number of questions asked can be revealing. The lack of any queries at all should hint to you that, although your talk may have been valid, it probably did not interest your particular group of listeners or that you loaded it with too many facts. A large number of questions would suggest that you must have hit a quivering nerve. Although numerous questions do not necessarily mean that your paper has merit, excited comment means, at least, that your listeners have responded.

The character of the questions is also revealing. If the queries deal mostly with the main concepts and results in your paper, you may be

assured that the audience is alert to the gist of your contribution. If, on the other hand, the questions concern inconsequential side issues, you may begin to wonder whether your central points and your real message ever reached your listeners.

Some of the audience may comment about their own experiences or offer observations that have no bearing on your paper. You have to tolerate "show-off" comments politely but should not let them deteriorate into pointless rambling.

When you receive a direct question about your talk, *repeat it for all to hear.* This, incidentally, gives you time to think about it. Respond with an honest and forthright answer. If you do not know the answer, admit it freely. When the question seems too complex or poorly framed, attempt to draw out the questioner. You may then find that a seemingly irrelevant question turns out to be a significant and interesting one that deserves an illuminating answer.

If the questioner raises a highly controversial point, do not allow yourself to be cornered into a defensive stand. Maintain your control of the situation by suggesting that you can discuss it privately without involving the audience in such a time-consuming matter.

When you respond to questions tactfully and with good judgment, the discussion period can be a fruitful exchange of information. Filling in the gaps in this way then becomes the finishing touch to your oral presentation.

To sum up, an oral presentation deserves a somewhat different treatment from a written paper,[13] because even the most mature technical talk is usually a grown-up version of "show and tell." It is shorter and has less detail than the written version because we learn slower with our ears than with our eyes. In addition, the speaker's personality and sensitivity to the audience are important elements of an oral presentation.