



**An effective presentation begins in the planning stages.**

## Delivering an Effective Scientific Lecture

Oral presentation of research is one of the most important and sometimes feared aspects of a scientific life. Most young scholars have ample opportunity to make presentations in small or private settings, such as at group meetings and department retreats. As one builds a career, the occasions for such presentations in seminars and national meetings become even more important. Although many mentors stress the principles of an effective presentation, it remains a mystery why so many prominent investigators perform poorly in this regard. Unfortunately, it is quite rare for a one-hour lecture to hold the attention of an audience and to impart a limited and memorable conclusion. One principle that many speakers fail to embrace is the importance of empathy for the audience. The job of a public speaker, at least in science, is to inform interested people from other fields and not simply to impress competitors. The few real experts in any given audience are not the ones to address; the target should be those who come to learn something new and not those who have heard the subject over and over.

An effective presentation begins in the planning stages. Many speakers attempt to stuff far too much into a seminar. Even an hour seminar should focus on one theme or perhaps two closely related ideas. The presentation should begin with a simple introduction for the uninitiated. Be sure to acknowledge the contributions of others in the field, and not only if they happen to be in the room. Follow with a brief summary of the results to be presented and then build in layers until the heart of a topic and the data are ready to be explained. Most speakers present far too many slides and an excessive amount of material, much more than any but the few

experts can comprehend. Slides should be limited in number; one every two minutes of a presentation is a good place to start. The slides should be designed for simplicity. Every data point should be described and each slide should not develop more than one experimental result. Figures from publications often do not make effective slides. Color can be an effective tool, but certain schemes are distracting and some combinations provide poor contrast. A colorful presentation from a colorful personality may be entertaining, but the final impact may be amnesia-inducing. Successful

presentations follow an arc progressing from the historical origin of an idea through the critical tests and the logical conclusion.

During the presentation itself, address the audience and not the screen. Speak slowly and clearly, again assuming most people do not know the jargon of the field. Look for facial cues from the audience indicating comprehension and attention. Effective speakers develop a rapport with the audience and can judge the level of interest from nods and smiles or yawns and distracted daydreaming. A friendly face in the audience can often dispel the anxiety that is quite natural in most, even experienced, public speakers. Use a pointer with some precision to highlight a data point but not as a magic wand to bless the slide.

Many speakers use humor or personal anecdotes to lighten a presentation. Of course, such asides can become excessive and distracting (*mea culpa!*). Here again, it helps to develop a personal bond with the audience. Take note of the techniques and style of the best lecturers. Mention the names of co-workers throughout a presentation and use anecdotes to

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personalize the impact of their contributions. Where appropriate, practice a presentation in front of friendly but critical peers.

Stick to a prescribed time limit. An excellent seminar spoils quickly when the speaker goes more than a few minutes over time. A well-paced seminar will conclude near the time limit with final results that round out the theme, a restatement of the conclusions, and an indication of future directions. Although it is typical to conclude with a list or picture of collaborators, the role of a student, postdoctoral or colleague will be lost if he or she is not highlighted during the

presentation. If time and format permit, the post-seminar question period presents another opportunity to explain and highlight results and new directions. Questions from the audience must be treated with respect and patience. Clear and succinct responses reinforce the good impression left from a well-paced and modest presentation. Arrogance pays no dividends.

Finally, enjoy the experience. An effective presentation and an

appreciative audience can be one of the great pleasures of a life in science. ■

—Randy Schekman

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