**Tips for Talks** Edward M. De Robertis UCLA/HHMI

Sometimes we work for years in the laboratory for a 15-minute opportunity to present our results. Therefore, there is no excuse for not preparing a talk thoroughly. Below you will find my suggestions on how to give scientific seminars or lectures. I have taught this to all the students that passed through my lab over the years. Following these simple rules can be very effective.

The Basics

*Speak loud and to the back of the room*.  Stand straight and your voice will carry best. Never address your speech to someone sitting at the front of the room, no matter how important the person. It helps to find a friendly face in the back of the room to speak to. If friendless, you should speak into the space between two people at the back row. You cannot speak too loud. If a microphone is available, always use it.

*Practice makes perfect.*  Practice your talk *out loud* at least ten times. I usually do this in my hotel room. To practice out loud is essential because it facilitates the circuits between our thoughts and the motor centers that control our vocal cords. Practice using a lab timer. In this way, you will have an idea of how you are doing at all times during the actual talk. If you are unsure you will be able to end in time, a good strategy is to have in reserve an alternative earlier ending point. As a general rule: one slide, one minute (or 1.5 slides per minute on a good day).

*Podium*: if there is a podium available, always use it. Stand next to the podium. Keep some notes next to the computer - this gives a more professional look. Take your watch off and place it next to the computer; in this way you can keep track of time without looking at your wrist (which is about the worst thing you can do). A lab timer can also work well for this purpose (start it so it is counting up). Have a paper cup with water on the podium; do not drink directly from a bottle in public.

*Write down the introductory paragraph on a sheet of paper*. If you read it again right before starting, there will usually be no need to refer to it. If one is off to a rambling start, this can take a large part of the time one has available. Writing down those first few sentences saves precious time. Also write your concluding paragraph in another sheet of paper, sometimes you will have to read from it as this also saves time.

*Arrive early at the lecture hall*, at least ten minutes or more. Check out the lighting - talk to the projectionist if one is available - you would like to have the maximum illumination possible. It is most important that the audience can see your face while you speak. Some rooms have spotlights; you should stand under them whenever possible. The best lecturers draw the audience to them rather than to the slides. If some good Samaritan turns the lights off during a particularly dark slide, ask that the light be turned back up again after that. If the room has note lights in the ceiling, these should be at maximal intensity, particularly at the back of the room. Never speak in a darkened room.

The Lecture

*The first slide* should be already being projected before you take the floor. It should show the title, your name and affiliation, and contain the three main subdivisions of your presentation. The background can be a soft picture related to the problem you will discuss. In all PowerPoint slides use large font, in bold, so that it can be read from the back of the room.

*Begin by saying: “Today I will tell you about*… [title]”. Then, after one or two additional sentences (which you have written and have available on the podium), say:

*“I will divide my talk in three parts...”* and explain the three parts listed in the first slide.

*Then tell the audience what the main conclusion will be*.  A common mistake is to leave the main conclusion as a surprise revelation for the end of the talk. People have short attention spans and by then they will usually have drifted away. The audience will be more comfortable if they know what you are going to tell them, in this way they can follow the flow.

*Any talk can be divided in three parts*. Artificially subdividing a complex problem is a very ancient rhetorical device. Three is an ideal number and we have inherited this division into three from ancient Greece. (Always divide your grants in three specific aims as well). Once you reach the end of each section, restate its conclusion and say you have come to the end of the first (or second) part and you now turn to the next part. In this way, the listener does not lose track of where you are, and the story will have a certain ring of familiarity that they will appreciate.

*If teaching medical students* you might include a picture of a patient early on, explaining that “by the end of the lecture you will understand how [X disease] is caused.”  This is a useful trick to capture student attention from the beginning.

*Background material*: two or three slides will follow the initial one. Provide enough background for everyone to understand the problem being discussed. Do not use jargon. Place yourself in the shoes of the listener. Your objective is to offer a lesson to those who do not know your field (Lecture comes from the Latin *Lectio*, which means Lesson).

*Avoid jargon.* Define all unavoidable acronyms (e.g., BMP = Bone Morphogenetic Protein) in writing on your slides when first used. Sometimes the listener will not quite understand a technical word or two, but this is much easier if read as well.   
*Do not talk into the screen*. Should you do this your voice will not carry. You should face the audience directly as much as possible. This is ensured by using the laser pointer with the hand that is closest to the screen. If the screen is to your left, you should point with your left arm, even if right-handed. If you were to use your right arm in the same situation, this would place you speaking squarely into the screen. This is one of the most frequent errors in public speaking.

*Point briefly* to the object you wish to indicate, and then retract the pointer. Do not circle the object while you continue talking, this distracts the audience. Just point once, and then return to face the audience. You want people to be able to make eye contact with you.

*PowerPoint slides should have a title using the exact same wording you will use* in you talk. This greatly helps the audience, for they can follow what you are saying. A brief conclusion can also be included for particularly important points.

*Do not use black or blue background* in you slides; the maximal possible amount of light compatible with the images is the ideal.

*Transitions between slides are most important*. Before advancing to the next slide you should start the sentence introducing it, and your words will usually correspond to the title of the next slide. For example: “This raises the question of whether… change slide… Surface receptors are required for signaling”. This is why it is essential that one has memorized what the next slide is about. When preparing for a PowerPoint presentation, I print the slides as handouts with six slides per page, and write down the transitions below each slide and in the beginning of the next one. These transitions between slides are the main reason you must practice your talk.

*Good versus bad slides.* Bad slides are those that are complex and contain many data panels. Show these only briefly, and point the audience to exactly what is important in the slide. Explain: “in this panel, the relevant lanes are [X] and [Y], and [X] and this means that...” Then move on. Do not leave complicated experimental slides up for long. Good slides are simple, for example a diagram of an embryo or a cuddly animal. A useful habit is to project your nicest slides for longer times. For example, while explaining the conclusion of one of the three parts of your talk and that you are now moving into the next section, you should use a “good” slide as background.

*For biochemical experiments always describe the assay used*. This is most important. You might include a diagram of the experimental procedure. Write the conclusion from the assay on the slide in which you show the data. If there are new methods or reagents (such as a particularly good commercial antibody) tell the audience; this is always appreciated.

*Using the blackboard is highly recommended* whenever possible. You might, for example, write the three parts of the talk, draw relevant diagrams, or list the names of collaborators (before the talk if you can). You can point to these as the talk progresses. A useful trick for complicated figures is to draw your diagram on the chalkboard ahead of time and then erase it. This leaves faint traces that you can retrace during your talk; people will think you are a master illustrator. Regrettably most modern lecture rooms no longer have boards, but if you have one make sure you use it.

 The Conclusion

*Write your conclusions* on a sheet of paper. After a very good talk you will be shaken up and exhausted by the end. Frequently I end a seminar by taking the concluding paragraph from the podium and reading directly from it. This conveys certain earnestness as well. An alternative strategy is to include a final slide with the take-home lessons or conclusions after the acknowledgements.

*Never, ever end a talk by saying “I will stop there.”* You must always have a concluding statement (this also applies to your grants).

*End on a simple slide* - a nice picture perhaps with the main conclusion written over it, after the list of collaborators. Then say “thank you for your attention” or “I leave you with that thought, thank you”. The purpose of not ending directly on the list of collaborators is to draw applause. During the seminar always use the last names of your colleagues; no one will remember John or Jill. Full names can be written at the bottom of the relevant experimental slides. I usually include a photograph of the main person responsible for the work in the body of the talk – this helps postdocs find jobs.

 The Questions

*Remember that the questioner is your friend*. You always know more than him/her, and questions will greatly enrich the discussion. The worst outcome for a lecturer is to have no questions. Often there is a pause from the audience prior to the first question as they collect their thoughts. During that tense time, just look into the audience calmly. Do not start gathering your papers or disconnecting the computer. Once you get the first question the ice is broken and you will draw many more.

*Never interrupt a questioner.* It is not at all easy to formulate a question and one must always be very respectful. Pause after the question has ended as if you were thinking about it, even if you know the answer. Take a step forward so that you are more exposed to the audience. This indicates you welcome discussion.

*Look straight into the person’s eyes and reformulate the question*: “The question concerns...” This is particularly important if you get an adversarial question, because it denotes that you understood the objection and will treat it seriously. Other times it is difficult to understand the exact point being asked, so it is best to restate what you are answering to. If your answer was not a simple one it may be polite to ask “does that answer your question?”

*If questions arise during the course of a seminar, always answer the question right away*. Never answer this will come later in the talk. Advance a few slides if needed, but answer completely there and then.

A PowerPoint presentation including the all-important introduction and first slide can be found in the Evo-Devo section of this website.

The Chairperson

*The function of the Chair or moderator is important*, yet this is rapidly becoming a lost art. When moderating a meeting with short talks it may enough to say the name of the speaker and title of the talk. However, when introducing a seminar speaker or keynote lecturer you must do your homework.  
  
*State what the main discoveries of the speaker were*. This will be rewarding for the person that has traveled from far away to speak at your institution and will educate most listeners. Science is all about discoveries yet these are seldom recognized. One should also ask the speaker before if there is an achievement she/he would like to be mentioned in the introduction. Chairing is an opportunity to teach.

*Never improvise*, a serious introduction has to be written and then read out loud.

*The Chair should stand up at the end of the talk*, face the audience and say: “the paper is now open for discussion”. One might say “the presentation” instead. Personally I like to say “the paper”, which is a relic from when written papers had to be handed in at symposia at the time of the lecture.

*The Chair should stand next to the speaker and point out to the person that may ask the question*. While the question is being asked the Chair should take a step back and stand on the sidelines, reemerging to select the next questioner. The speaker should not be left alone to field questions.

*If there were no questions*, after a suitable pause the Chair should ask a question thought of beforehand. This will usually elicit additional discussion.

*Announce “this will be the final question”* and after it is answered say: “we thank so and so again for coming”.

Summation

Public speaking is something that any scientist can and should learn. It requires practice and dedication. Scientific presentations are part of a continuum of civilized discourse and should be prepared with care.

Acknowledgements

These tips were learned from those who trained me, especially from postdoctoral advisor Sir John Gurdon, and also from Ph.D advisor biochemist Hector N. Torres and medical school research mentor embryologist Roberto Narbaitz. Thanks are due to a rotation student, Kathleen Myers, who took such good notes during my customary student training that they evolved into the present work.

Hoping these suggestions will be useful to you,

Eddy De Robertis  
Los Angeles, December 24, 2010