

Giving Talks

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It may seem hard to give a good talk. Perhaps the following will help.

1 Introduction

These comments are meant to apply to anything less than a series of lectures, although much of what I say is still relevant then. The aim of your talk should be to convince your audience that the topic of your talk is interesting and worth studying. So you are standing up there to persuade, not to educate. In carrying out this task there are two sorts of errors to be made: strategical and tactical. (A strategical error is when your army invades the wrong country; a tactical error is when your artillery shells your troops.) I will discuss strategy first; it is probably more important.

2 Strategy

1. **Your talk must be well and thoroughly planned.** (This is the single most important point in this entire article.) You should begin your preparation by writing down a half-page (or shorter) summary of what you want to say. This summary will give the three or four main points. Once you are clear as to what the main points are, you then plan how to best communicate them.
2. **Don't attempt too much.** The only way to cover a large amount of material is to leave a lot out. It is unfair to expect any audience to absorb more than three or four points in an hour.

3. **Avoid proofs.** If you must give a proof, it should be a proof-by-example. You want to communicate ideas. The only people who want to see the details of a proof are students who have to hand in a complete proof of the result within 24 hours. And even they are not really interested.
4. **Use concrete examples.** Don't aim to be as general as possible. Examples are more likely to be remembered than just about anything else except, perhaps, bad jokes. Don't be afraid to spend a considerable proportion of your time illustrating definitions, results etc., on a particular example. (Reusing a well chosen example can provide a unifying theme.)
5. **Don't overestimate your audience.** Even when properly awake, the professors (at least) in your audience have trouble remembering the basic facts of their own specialties, let alone those relevant to the strange and novel material you are selling. In nearly all cases it is quite unrealistic to assume that most of your audience is familiar with even the basic concepts of your subject. You must explain them!

3 Tactics

1. **Start well.** Don't start by giving even an uncomplicated definition. Don't start by writing down, in perfect silence, the statement of the main theorem. At the very least you could begin by outlining what you are about to inflict on your captives.
2. **Keep your audience informed about what you are doing.** When Columbus set out he did not know where he was going, when he arrived he didn't know where he was and, on his return, he did not know where he had been. There is no need for you to follow in his wake. You should say what you are going to do, do it carefully and then summarize what you have done. At any given instant you, or any member of your audience, should be able to say what you are now doing, and even why. (For example, are you stating a definition, giving the key idea of some proof, reviewing the history of your topic...) A neglect of this point is one of the commonest errors made by students. Your talk should have structure—a beginning, a middle, and an end at the least—and this structure should be evident to the audience.
3. **Keep things motivated.** The key question is not "What has been done?", but rather "Why has it been done?". With some problems the latter question can be very difficult to answer. (I will resist the temptation to state my favourite examples.) Analogies and indications of interconnections to other areas can help here. Taking a historical view is another possibility.
4. **"Board work".** Speak clearly. Face your audience. Remember that, although your arguments may be transparent, your body is not. If you are using a blackboard, set your material out logically, and work consistently from left to right. If you are using a projector, don't write too much on a single transparency. (The ideal here is one to three

lines, the maximum about eight. If you need to indulge in “strip-tease”, i.e., gradually revealing the contents of each transparency, then you have too much on the transparency.) The content of your transparencies should not be a transcription of what you would have written down in giving the same lecture on a black-board, or the paper on which your talk is based. Never read from the transparency. Do not point to items on the transparency, step back and point to the screen. Do not attempt to use the projector and a blackboard.

5. **Don't criticize or complain.** Even if the promised overhead projector is not available, or if you are provided with only one small blackboard with no eraser, or your allotted time is halved without warning, don't complain. (Do not think these things can never happen. I have experienced them all first hand, and could doubtless find more horrifying examples by consulting with randomly chosen colleagues.) Complaints, even when justified, tend to alienate your audience. They are unpleasant to listen to. If you run out of time, don't complain—it is your own fault for not planning properly. Don't belittle your own work or criticise your own presentation. Such criticisms are either unjustified, or unnecessary. Humility may be a virtue, but it is not entertaining to watch and it is not what you have been called on to demonstrate. (Of course, there is also the danger of over-compensation in this regard.)
6. **Finish well.** On an upbeat. Re-emphasize why your topic is worthwhile. A short summary can be good. Always finish with something worth remembering. When planning your talk, you should arrange things so that some sections can be passed over if, during the talk, time runs faster than usual. (Talking faster is **not** a solution.) It is particularly important to finish on time when speaking to strangers. They cannot normally expect an opportunity to revenge themselves on you, and so they will be much less forgiving than your friends.
7. **Questions.** You do not have to answer every question you are asked. Make sure you understand the question before you reply. Long answers should be delivered in private. It happens surprisingly often that someone claims that your main result is already known. Relax: nine times out of ten the questioner has not understood what you have said. (This could, of course, be your fault.) Sometimes the village idiot turns up to your talk; be polite but brief.