Giving a Talk

Guidelines for the Preparation and Presentation of Technical Seminars

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"Studies show that fear of public speaking ranks higher than fear of dying. I guess this means that most people at a funeral would rather be in the coffin than delivering the eulogy..."   *Jerry Seinfeld*

1   Introduction

Often in your career you will be faced with the prospect of "giving a talk," that is, making an oral presentation before an audience. These notes are a collection of a few simple guidelines for preparing and delivering a "talk." The basic principles are applicable in defence of your thesis, at conferences, in giving research progress reports and the like.

These notes are intended to supplement—rather than replace—standard texts on public speaking and effective oral communication. The suggestions given here have worked well for the author and his friends; perhaps they will work well for you too!

2   The Basics

Define your message.   If you have nothing to say, you cannot give an effective talk. Assuming that you *do* have something to say, it is important to identify at the outset just what it is that you are trying to communicate. Write down a short list of important points that you want to make (no more than 3 or 4). These points are often called the "take-away message," that is, the message that the audience should be receiving if your presentation is to be effective. Your entire presentation should focus on presenting the take-away message in a clear and convincing way. Guard against making your take-away message overly complex, as this will only overwhelm the audience.

Know your audience.   To be effective, your talk must be delivered at a level that is appropriate for your audience. You must analyze the background and expectations of the audience to deliver the take-away message in the most effective manner. This may mean modifying the take-away message, if the concepts involved are beyond the level of your audience.

Knowing your audience, you can begin to decide how much background material is needed to deliver your take-away message effectively. Your audience will influence your choice of vocabulary (technical jargon) and may even influence how you dress!

Prepare well.   The best way to give the impression that you know what you are talking about, is really to *know*

what you are talking about. This means that you should understand your subject well, and be able to answer related questions. On the other hand, it is impossible for any one speaker to be able to answer *all* questions that might be asked. There is no shame in answering "I don't know" to a question that is asked—in fact, this answer is preferable to an incorrect or misleading reply, or a "stab in the dark."

Of course you must know when and where your presentation is to be held, and, if necessary, what specialized audio-visual equipment (slide projectors, videocassette recorders, etc.) is available. You can usually count on the availability of the ubiquitous (overhead) viewgraph projector. Discover that your pens are dried out before your presentation! Technical presentations invariably rely on some sort of visual aid, usually slides or viewgraphs. (Whatever they are, they will be called slides in these notes.) More will be said about preparing these later.

You should find out how long you are required to speak, and aim to have your presentation fit within the allotted time. One good way to judge the presentation time is to rehearse your presentation ahead of time. Another method is to count slides; if you know your average rate of going through the slides, this can work quite well. The author uses the "one simple slide per minute" rule of thumb; most people use fewer. Experiment to determine your own rate. If, for some reason, you find yourself running out of time, don't be afraid to skip slides.

It is a good idea to keep your slides well organized in a folder, binder, or notebook *during* your presentation. This allows for easy retrieval during the question period, when, almost inevitably, somebody will ask you to put up a slide from your presentation.

You may want to prepare three or so back up slides for anticipated questions. Such slides could present interesting details that are peripheral to the main chain of reasoning, for example. It is also handy to have a couple of blank slides around, so that you have something to write on when have to explain something not covered on your other slides.

You might want to practice your presentation at least once before a friendly (or simulated unfriendly) audience a couple of days before your presentation. Talking to a mirror can also help, but even better is a tape recorder, since you can play it back and hear yourself as others will hear you.

3   Delivering Your Presentation

Tell'em what you're going say...   An effective way to emphasize the take-away message is to repeat it several

times during your talk—without seeming repetitious, of course. This can be accomplished by presenting an outline of your talk at the beginning. After presenting the arguments that support your take-away message, you can recap these points at the end of your talk.

A typical outline for a talk looks like this:

- Introduction

- Point 1

- Point 2

- Point 3

- Conclusions

where points 1–3 represent the take-away message. Some speakers like to return to the outline slide after each point is covered, to show the logical progression through the talk.

The outline almost invariably contains some type of introduction as the first point. Whether the audience is a group of experts in the field or a group of novices, *all* audiences require some type of introduction to your topic. Such an introduction will attempt to place the subject of the talk into a wider context; it will also sometimes review some of the background material (e.g., history, terminology, and notation) needed to understand the talk. For an audience of non-specialists, the introduction may take up as much as half the time of the talk. Always start with what you know the audience knows, to make them comfortable at the beginning.

The points of the outline should be organized in logical fashion, so that point 2 follows logically from point 1, point 3 from point 2, and so forth. Try to plan the talk with an easy-to-follow story line. To catch audience attention, you can feed them interesting tidbits to be explained later in the talk.
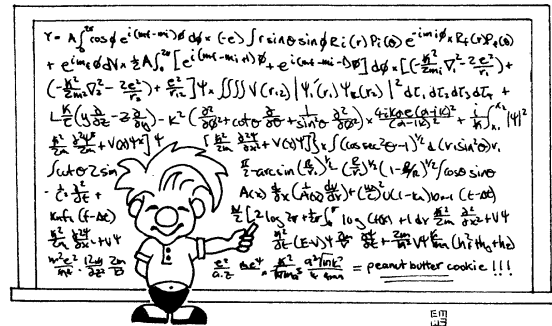
Avoid trying to dazzle your audience with impressive looking equations or complicated lines of reasoning. Your aim should be to educate, not to impress. Even the most seasoned expert in the field will not be impressed by an unintelligible, overly detailed presentation.

Say it…   Once you have placed the subject of your talk into the proper context and have reviewed the necessary background material, it is time to convey the essence of each of the points in your take-away message in an effective manner. This is where you will spend most time, but it may not be the part that the audience will remember most.

Follow your outline. Present—in the simplest way possible—the arguments that support each point in your outline. A useful rule of thumb is to use a new slide for

the presentation of each new idea, or argument. More on this later.

Tell'em what you've said.   At the end of your presentation, it is a good idea to recap the take-away message. The usual way to do this is to provide a summary slide, with the take-away message shown in point form. This summary will usually conclude your presentation, except in the case of thesis presentations, where it is typical to provide some suggestions for further work. If appropriate, you can invite the audience to ask questions at this point.

Avoid trying to dazzle your audience with impressive looking equations or complicated lines of reasoning.

4   Preparing Slides

One slide—one simple idea.   As already stated, each slide shown in your presentation should have a simple message. It is important not to crowd too many ideas onto a slide as this inhibits understanding. Text is best presented in point form. Try for the maximum impact with the fewest words—like newspaper headlines. If you write complete sentences, you will invariably simply recite them to the audience word for word, tuning your audience out completely. Using point form on your slides, you can elaborate verbally without distracting your audience from your main message.

Avoid overcrowded "eye exam" slides. And show the whole slide at once! Covering up parts of your slide with opaque paper is no help—the audience will just get curious about what's hiding underneath, and lose track of your message.

Try summarizing each slide on a single line, e.g., in a box at the bottom of the slide, or by posing a simple question at the top of each slide. This will allow audience members with wandering attention spans to "recalibrate" themselves with your presentation.
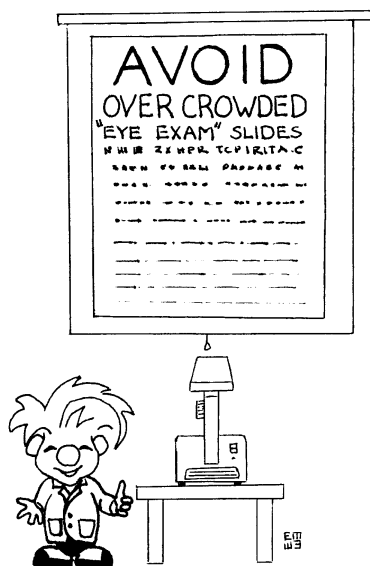
Use lots of pictures, few equations.   Pictures are worth thousands of words—the more pictures you have, the better. My colleague Glenn Gulak suggests the following

rule of thumb: never, without good reason, use more than two slides in a row with no pictures.

Don't make your diagrams too complicated. Use simple block diagrams; each simple block can be expanded upon in later slides if necessary.

Graphs are the most useful way to present relationships between variables. Briefly show an equation, if you must, but spend the most time presenting graphs obtained from the equation. Similarly, graph numerical data rather than presenting numbers in tables. *Always* label the axes of a graph, and *always* explain the physical meaning of the variables being plotted, at least the first time that a graph of this particular type is shown. Try to keep the same scale and size on graphs of a similar type; this will allow for easy comparison. Avoid graphs with many different curves. Include enough curves to make your general point—you can always claim that other curves are similar to the ones you show. Use contrasting colours to separate curves, even if it means colouring a computer-generated slide by hand.

The mechanics of slide preparation. Many effective presentations can be made with hand-printed slides. The advantages of hand-printed slides are that they can be prepared fairly quickly, and without specialized equipment (i.e., you can write them on an airplane, or in your hotel room the night before your presentation). You can also easily introduce colour into your presentation. The main disadvantage is that you have to be extremely neat. If you cannot print neatly, then this method is not for you. Another disadvantage of the hand-printing method is that you might give your audience the impression that you did not have time to prepare adequately, i.e., that you wrote them on the airplane, or in your hotel room the night before the presentation.

Most computer-generated slides are prepared by photocopying printer output directly onto transparencies. (The ECE photocopy room maintains a supply of these. Just ask for them at the desk.) Slides can be prepared using your favourite word-processing package—just remember to use a large font (point-size 14 or more). Avoid too many font changes; use simple, easy to read fonts (Helvetica or another sans serif font) for headings and labels. If you use LaTeX, you may want to use the `slides` document class, a version of LaTeX specialized for slide production. Watch for unwanted hyphenation; generally, text on slides should not be hyphenated.

Figures can be hand-printed, or computer generated, whichever looks best (or is most convenient). Many of the computer drawing packages can be used to create both the text and pictures for each slide. Finally, don't forget that you can always "cut-and-paste" the different elements of a slide, each of which can be generated in the most convenient way.

5 Other Useful Tips

Relax! Try not to be nervous or intimidated by your audience. Give the appearance of calm confidence, and focus all your energy and concentration on the message in your presentation. If you are focussed on your talk and not your nervousness, so will your audience be.

Some inexperienced speakers will attempt to memorize their talk, or read it from a prepared text. One word of advice: don't! If you need to refer to a set of notes, put them in point form, not in complete sentences, or you will find yourself reading them out. The best method is to use your viewgraphs or slides as visual cues as to the points you would like to make. If you keep each slide simple—one idea to a slide—nothing will be forgotten.

At the start, determine the best place to stand so that you are not blocking the projection or somebody's view. When placing a slide on the projector, make sure that you look back at the screen to see that all is visible, and adjust the slide if necessary. It is best to point at the screen, if possible, rather than at the projector. The projector moves if you get too friendly with it. If you must point at the projector (if the screen is too far away, for example) be sure to keep the pointer steady. Also, don't fiddle with your pointer, as telescoping it in and out really detracts from what you are saying. Don't fumble with your slides. Throw away "tissue paper" separators *before* your presentation.

Remember to focus on your audience, not on the projector. Aim to speak slowly and with enough volume to reach the person in the audience who is farthest away. Look around, they won't bite, and you can see whether your points are sinking in. Interact with the audience.

Ask them if they are following you, or ask them simple questions to see if they are. Liven them up a bit.

Take control of the questions, during or after the talk. Try to steer the topic back on track, otherwise audience participation can drive things far away from the main points of the talk. Take discussions off-line if they are consuming too much time or will not readily be resolved. Feel free to interrupt debates among audience members—after all, it's *your* talk!

Humour can make a big difference, especially in dry technical talks. Try to lighten it up a bit; especially after some particularly heavy going. Cartoons can be an effective way to draw parallels with points you are trying to make. Even short verbal asides, rhetorical questions, or anecdotes can go a long way to keeping up audience interest.

Try not to be nervous or intimidated by your audience.

Learn by observation. In university, you are in a particularly good position to observe others giving presentations. Take the opportunity to learn from the mistakes that others make, and borrow (steal) techniques that you find effective. Watch carefully for methods used by your lecturers that improve your understanding. Be careful, though, that you don't pay so much attention to the medium that you lose the message.

Further Reading. There are dozens of books in libraries and bookstores that cover effective oral communication. The *IEEE Trans. on Professional Communication* is a good source of articles, especially the March 1980 "Special Issue on Public Speaking for Engineers and Scientists." Another good way to get public speaking experience of all kinds—not just technical—is to join a Toastmaster's Club.

6 Conclusions

Finally, a last piece of advice. Giving a successful talk takes a lot of effort, and more than a bit of experience. Don't get discouraged if your oratory ability is found lacking your first time out. Take seriously suggestions made by your audience, and try to improve for next time. Soon you will be an expert in the preparation and presentation of technical seminars!

Acknowledgments

End Note

These notes are presented here in a rather preliminary form to which I hope to make improvements in future. I would appreciate hearing your comments on aspects of the notes that you liked or didn't like, points that you found useful or useless, and topics you would like to see omitted or included in future revisions. Send email to `frank@comm.utoronto.ca`. *– Frank Kschischang*

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[1] URL=`http://www.comm.utoronto.ca/frank/guide/guide0.html`.