

This presentation discusses some guidelines to consider when preparing for a presentation of technical information. It was originally presented to the 1999 SHARP students at NASA/GSFC as part of the Youth Leadership program presented by Goddard Toastmasters.



Technology becomes more and more pervasive each day. It touches everyone's lives. This produces a great deal of confusion about technology and science, and this has resulted in many misconceptions and unwarranted fears. Sadly, many of our technical experts are not trained in how to effectively convey this technical information to a general audience. It's not a difficult skill to learn, but it's a very important one.

This presentation will cover various aspects of the process of preparing and presenting a technical talk. It will cover preparation, speech organization, design and use of visual aids, and how to tie it all together in a presentation.



A good presentation is a good presentation, whether you're talking about rocket science or cheese burgers. The elements of a good speech are universal. In a technical speech, however, there is sometimes a much narrower margin for error. Since the topics can be very complicated, organization and clarity become even more critical. It's very easy to lose your audience in a fog of technical jargon and acronyms.

Also, many technical people have poor presentation skills which frequently result in dry, boring, and confusing presentation. The stereotype of the dull, or incomprehensible scientist or engineer is very prevalent, and it becomes very easy to live down to those expectations.

But there is hope. If you start out planning a good speech, then it doesn't matter what the topic is. It's all a matter of preparation.



Know your audience, and you'll know what type of information you can successfully present. This can be tricky, because you may need to cater to people with very strong technical backgrounds as well as laypersons. You'll need to strike a balance in the depth of information you present to keep the less informed person from getting lost, while still keeping the other people interested.

Make sure you start out my stating your objective. What should the audience know by the end of your talk. Don't bite off more than you can chew. Your objective should be narrow enough to fit within your time constraints.

Once you've defined your purpose you need to support it. Plan the route you want to take to help the audience reach your goal. Keep the presentation focused on that end goal.



As I stated before, the mechanics of a good technical presentation are the same as for any presentation. You need to start with a introduction that gets your audience's attention and let's them know where they're going.

The body of your speech should have a logical flow. You don't want surprises here. You want the audience to be able to follow you easily.

Keep your information clear and minimize your use of jargon and acronyms. For instance, if I was to say that I just completed a STOP analysis on the SRS for GLAS, that's a lot less clear than saying that I completed a structural/thermal optical distortion analysis of the Stellar Reference System for the Geoscience Laser Altimeter System instrument. At least then the audience has a fighting chance to stay with you. If you do use acronyms or jargon, be sure the audience understands them. At the very least, include an acronym list.

By the time you reach your conclusions, it should be obvious to the audience. Reiterate what was learned, and what future plans, if any, are in the works.



Visual aids can either help a presentation or distract from it. Unless your plan is to use complex and cluttered visuals to confuse the audience and cover up the fact that you don't know what you're talking about, you should probably stick to fairly simple and straight forward visuals.

A visual aid should be an aid to your presentation. It should compliment or emphasize the points you're trying to make. In general it should be simple and legible enough to be read and absorbed in about 30 seconds to 1 minute. This means you need to consider the amount of data presented, the type of data presented, and the size and character of the fonts and colors used. Don't get carried away with using multiple fonts and colors. You don't want your visual to look like a ransom note. In general, you shouldn't use more than 3 or so different font or colors.

Finally, all your visuals should support your points and help to direct your audience toward your end goal. Consider them to be the traffic signs on your presentation route.



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There are plenty of examples of what to do and what not to do with visual aids. Here are a few examples.



This is a pretty good visual. It's very specific in what it's trying to show, and is relatively uncluttered. It effectively sets up other visual which can go into more detail on the laser.



This is a pretty good example as well. It may be presenting a bit too much information, but uses the diagram to visually illustrate it's main points.



Try reading and understanding this slide in 1 minute. Ready...go!

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Being overly verbose is a very common problem with visual aids. You have two choices: either condense how you present the data or how much you present, or split the data up onto multiple slides that can be digested more easily.



Presenting technical information takes a lot of practice. Timing can be difficult as you always think things will go faster than they really do. This can be particularly bad if you have to stop for questions. When you are preparing you visuals and thinking about time, you should plan for at least 30 seconds to 1 minute per slide. 2 minutes might be even more reasonable. Use that as a guideline for determining how many slides you can use, or how long your presentation will be.

There's a great temptation when using visual aids to talk to them rather than the audience. This is particularly bad since it's rude to turn your back on the audience and, generally speaking, the screen doesn't care what you have to say. Try to stay facing the audience, or at least don't turn your back to them. Using a pointer may also help to keep you from turning completely around, also keeps you from needing to obstruct your visual.



Before you get up to speak, make sure all your visual aids are ready to go. Slides should be in order, videos cued up, and you should not only know how to use the equipment, but also make sure that it works, and is properly focused.

And finally, the most important part of preparing for your presentation is to practice. This means not only practicing your speech, but also the use of your visual aids, and also fielding questions. Force a friend or two to listen to you and give you comments. They can even throw a few questions at you that you might not have considered. Practicing will not only improve your presentation, but will also make you much less nervous.



In conclusion:

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Keep your topic clear and focused.

Always remember your objectives and how you want your audience to reach them.

Organize your speech and keep it flowing logically. Help your audience to follow you.

Make sure your visual aids enforce and explain your points and objectives.

And practice, practice, practice.

Remember that a good technical speech still has to be a good speech. If you think of it that way, you won't have any problems sharing your technical information.