

Communication and Presentation Skills

(compiled during the workshop)

- General tips
 - Good volume but not shouting
 - Know your audience (knowledge level)
 - Visual aids (diagrams, etc)
 - Flow is important – don't want to spend too long on a simple idea
 - Keep on time, use the right amount of time explaining topics
 - Give yourself time to prepare the presentation – know when to stop
 - Memorize the first few minutes of a presentation
- Communicating in lectures
 - Build up to the more detailed information, build up to the big idea
 - How does what we're doing now relate to where we're going and where we've been
 - Beyond the slide
 - Open Data Ottawa: Pass around napkins, give audience a couple of minutes to write ideas, pass along, etc
 - Could apply to lectures as well to engage audience, or to let students find out where their peers are at in terms of understanding; coming up with project ideas
 - Use chalkboard to demonstrate algorithms in progress
 - Using chalkboard keeps people engaged/alert as they have to write, help remember it
- Conference presentations
 - Right level of detail
 - No point in going into very complicated equations when people can't process that much information
 - Distil down to the very basic information – if someone wants to know more they will look at the paper
 - Instead of showing pseudo code, break the process down into visual slides
 - "An academic talk is about an idea, not a paper."
- How do you bring your topic down to the bare essentials? (goes for lectures as well as conferences)
 - Think about motivation or application
 - Inspiration: TED Talks spend most of their time motivating – why does it matter?
 - Find a way to relate it to another type of problem that the audience understands

- Think about rhetorical goals
- What's the difference between written and oral communication?
 - During an oral presentation, we need to help the audience know where they are, whereas on paper they always have everything in front of them
 - Written: organization and space, Oral: time
 - What works well in a textbook is often opposite from what works in oral presentations
 - Essays can be more like an oral presentation (opinion pieces etc)
 - Written: visual formatting, etc, Oral: how you say it
 - When you have on your slides what would normally be on paper, rethink what you're doing
 - Example: put up an equation on the slide while explaining the motivation – bad!!
 - Written work will last many years, but oral presentations are not necessarily meant to (not in the same way) – you don't need to plan them in such a way

Communicating Solutions to Equations

(presented during workshop by Jacquelin Caron)

- <http://ocw.mit.edu/courses/chemistry/5-95j-teaching-college-level-science-and-engineering-spring-2009/>
- Direct approach: formal, short, jargon, give the facts
- Story mode: build the context, share stories about the researchers, reproduce the research process (how they ended up solving it)
 - Will stop occasionally to give the formal definitions and equations
 - Be able to add examples on the fly
- Video shows example using sorting algorithm

Communication Skills for Computer Science Students (CSTA)

http://blog.acm.org/archives/csta/2009/04/communication_s.html

Opening

1. Does your opening gain the group's attention?
2. Does it establish rapport with the group?
3. Does it indicate what you intend to explain?

The Key Points

1. Are your key points clearly expressed?

2. Are your examples interesting?
3. Are your qualifications of the key points clearly expressed?
4. Is each key point summarized?
5. Are the summaries clear?
6. Are the beginnings and ends of the key points clearly indicated?

The Summary

1. Does the summary bring together the main points?
2. Are your conclusions clearly stated?
3. Do you come to an effective stop?

Presenting

1. Can the group hear and see you?
2. Do you use eye contact to involve but not threaten?
3. Do you use audio/visual techniques effectively?
4. Are you fluent verbally?
5. Is your vocabulary appropriate for the group?
6. Do you make use of pauses and silences?
7. Do you vary your intonation?
8. Is the organization of your material clear?
9. Do you avoid vagueness and ambiguities?
10. Is the presentation as interesting as you can make

10 tips for academic talks (Matt Might's Blog)

<http://matt.might.net/articles/academic-presentation-tips/>

Since my own students are starting to give talks now, I thought I'd share what I've learned (the hard way) over the years:

1. The audience determines the talk.
2. Practice almost makes perfect.
3. Nervous energy is exploitable.
4. Every talk should motivate a problem.
5. An academic talk is about an idea, not a paper.
6. Slides must not overwhelm the viewer.
7. Images and diagrams are better than text.
8. Math's benefit must outweigh the loss of attention.
9. Style matters.
10. Questions are not random.

I've since found these insights and more in *Even a Geek Can Speak*. It's a short afternoon read. Anyone that does technical speaking should have it. [More detail on the blog]

Oral Presentation Advice (Mark D. Hill)

<http://pages.cs.wisc.edu/~markhill/conference-talk.html>

Things to Think About

1. Oral Communication is different from written communication

Listeners have one chance to hear your talk and can't "re-read" when they get confused. In many situations, they have or will hear several talks on the same day. Being clear is particularly important if the audience can't ask questions during the talk. There are two well-know ways to communicate your points effectively. The first is to K.I.S.S. (keep it simple stupid). Focus on getting one to three key points across. Think about how much you remember from a talk last week. Second, repeat key insights: tell them what you're going to tell them (Forecast), tell them, and tell them what you told them (Summary).

2. Think about your audience

Most audiences should be addressed in layers: some are experts in your sub-area, some are experts in the general area, and others know little or nothing. Who is most important to you? Can you still leave others with something? For example, pitch the body to experts, but make the forecast and summary accessible to all.

3. Think about your rhetorical goals

For conference talks, for example, I recommend two rhetorical goals: leave your audience with a clear picture of the gist of your contribution, and make them want to read your paper. Your presentation should not replace your paper, but rather whet the audience appetite for it. Thus, it is commonly useful to allude to information in the paper that can't be covered adequately in the presentation. Below I consider goals for [academic interview talks](#) and [class presentations](#).

4. Practice in public

It is hard distilling work down to 20 or 30 minutes.

5. Prepare

See David Patterson's [How to Give a Bad Talk](#)

[More online]

Using Metaphors and Analogies (Stack Overflow)

<http://stackoverflow.com/questions/274054/what-are-your-favorite-metaphors-for-technical-concepts>

A few of the examples people answered on the site:

My most recent one I used was when a customer didn't understand why we would have to charge them for switching out one mapping api for another. My metaphor was: If you had a heat pump at your house and then bought a gas furnace you couldn't just plug the electric wires in the furnace and expect it to heat your house.

I think of reference types as being like web pages. What you have in your hands is a way of getting to the information (the URL) and lots of people can see the same page. If someone edits the page, everyone sees the changes. I think of value types as being like printed documents. You have the actual words in your hands (rather than just a way of getting to them). If you copy the document (with a photocopier) those copies are entirely separate - if I give you a copy then scribble on my original, you don't see my changes.

RAM is like your desk space; hard drive space is your bookshelf space.