Week 9

Final Paper and Presentation

9.1 Lecture 13: Oral Communication Skills

2/28:

- Today: Best practices for oral presentations with graphic support.
- This is the last live lecture for the term.
- Common scientific oral presentation formats.
  - Oral presentation with visual support.
    - To an audience (5-200 people) with minimal disruption.
    - The formality of your presentation scales with the size of your audience.
    - You want to quickly, and efficiently, get a few scientific points across.
    - Slide deck for quick presentation of quantitative results.
  - Poster presentations.
    - Designed for one-on-one discussions.
    - Open-ended.
  - Extemporaneous style for both (we are not reading from a script directly; we adapt on-the-fly to the audience's reactions and the presenters before us).
- The common starting point for all communication.
  - Audience, message, and media (as per Lecture 10).
  - In our case, we know the audience, we're somewhat familiar with the media, and the message will be the challenge.
- Media: Oral vs. written communication.
  - The main elements are like the written report, but timing and oral delivery add challenges.
  - The presenter's challenge: Time constraint on information presented.
  - The audience's challenge: Can't control rate of presentation to match their comprehension, and can't re-read slides.
- Planning the oral presentation.
  - What part of my story can I tell in the allotted time?
    - Much less oral content than the written report!
    - Thus, make use of the visual support to communicate information quickly.
  - Be clear and concise.

        - We have to hone the message and can't discuss stuff in as much detail as in the written report.
        - Hint: They're not gonna be checking sig figs; we just need to convey that we know the essence of the experiment and that we've done our lab well.
    - Build a detailed outline of the presentation.
        - Organize around a message.

- Planning the presentation.
    - Tell a story — don't give a report.
        - There should be a narrative structure (with a beginning, middle, and end) to our presentation.
        - Engage the audience, and adapt to how they're reacting.
    - Recall that there's maximum audience attention at the beginning and then it drops off; make a lot of use of your opening slides! Attention may pick up again toward the end.
    - Arrange ideas in a logical sequence.
        - Don't necessarily spend the most time on what took you the most time in lab! Oftentimes, that stuff is dull and you should spend zero time on it.
        - Thus, don't necessarily go in a chronological order.
        - Emphasize key points as you make them.
        - Provide explicit transition points.

- Structuring the presentation.
    - This will track the written report, but don't necessarily treat these as headings!

- Introduction slide.
    - Most important slide (everyone is paying attention, spark their interest).
    - Introduce yourself and your collaborators.
    - Give the big picture (introduce the central question or topic *in one sentence*).
    - Acknowledging our TA might be a good idea.
    - Outlines aren't necessary here (maybe in longer presentations, though).
    - See example in Tokmakoff's slides!

- Background slide.
    - Questions to address.
        - Why is this topic worth investigating.
        - Where this content plays a role outside of this class.
        - Why we're interested.
    - DO NOT use equations in oral presentations, according to Tokmakoff's colleagues.
        - So be aware! Treat it like a graphic. If the equation *must* be there, you have to talk people through it like a graphic.
    - Go through this pretty quickly!

- Experimental methods.
    - Explain the links between our questions and the answer, and how our lab work got us from A to B.
    - Explain the techniques in a bare minimal sense to get the message across.
    - If you can find a way to eliminate technical details, then do that!

- Results and discussion.

  - Present the most important examples of things we measured and how it points to our conclusions.
  - What observations did you make along the way and *explain any insight you gained*.

- Conclusion.
  - Summarize the original question and state whether or now we answered it.
  - Relate back to the community. What further questions are raised?
  - Spend the first third of your talk doing something that every person in your audience will understand.
    - Second third: Stuff that half the audience understands.
    - Last third: Stuff that no one (even the speaker) understands.
    - That's tongue and cheek, but the point is that you should end on further questions (i.e., stuff that no one understands) that you'd like to see investigated in the field.

- Q & A.
  - Anticipate questions not covered in the presentation.
  - Bring extra (supporting) slides.
    - Hopefully, we'll be able to construct answers without needing a supporting slide.
  - We will be asked questions at the end!

- How to design effective slides.
  - Limit the number of slides!
    - They are for visual *support*, not to give your presentation for you.
  - Each slide should convey the message quickly and easily.
    - The average attention span per slide is 8 seconds.
    - Simple heading.
    - Clear statement of the message.
    - Minimal supporting text.
  - Use graphics liberally.
    - No clutter, though! Remember white space.
  - Use animation where needed.
    - When we have multiple elements and it's useful to introduce material stepwise.
    - When we have a bunch of elements, we can lead them through it one step at a time instead of having them be overloaded.
  - Graphs for quantitative info.
    - Tables are deadly; what are you trying to compare with it if you're going to include it!
  - Minimize text.
    - Paragraphs, complete sentences, etc. are very distracting.

- Graphics.
  - The same design principles we discussed previously, but with some adjustments for the format.
    - Keep them simple.
    - Use a consistent format.
    - Title all charts, tables, and diagrams.
    - Use clear, explanatory labels.
    - Everything must be legible from the back (sans serif, 24-32 pt). Tokmakoff believes that PowerPoint template defaults are too big.

- Practice the presentation.
  - Rehearse!
  - Practice several times. Then practice again.
    - The first few presentations will help work out the kinks in content, organization, and delivery.
    - Practice also assures that it doesn't sound scripted, that the content embeds in your head, and that it doesn't sound scripted.
  - Practice out loud with the equipment you will use.
  - Practice with a colleague or friend for feedback. Can help catch...
    - Content issues, typos, missing labels, and inconsistencies.
    - Do you rock, squirm, gesture too much.
  - Recording yourself can also be very helpful.
  - Time yourself — don't go too long or too short!
    - Make sure you're not a second over your time. There are plenty of conferences where they'll just yank you off.
    - If you're too short, you'll feel like you haven't told the full story.
  - Think about what questions your audience will likely ask.
- Delivering the presentation. On presentation day...
  - Arrive early to gauge the room and audience.
    - Be aware of seating, acoustics, and lighting.
  - Bring all the equipment you need. Check it and voice.
  - Anticipate problems.
    - What will you do if your equipment fails? Anticipate *everything* failing.
  - How should you stand?
    - Don't block the screen.
    - Stand at a 45° angle to the audience.
    - Maintain eye contact with gestures to visual support.
    - Don't turn your back to the audience.
    - Keep your weight evenly dispersed on both feet.
- Connect with your audience.
  - Put yourself in the audience's place.
  - Use everyday language and terms.
  - ...
- Gesture and movement.
  - Make nonverbal behavior deliberate; avoid extraneous motion.
    - Some walking and gestures ad variety.
    - Too much is distracting.
  - Use a pointer to draw attention or identify specific items on the slide.
    - Don't "stir the soup" with your pointer.
  - When there are multiple presenters, practice positioning and handoffs with partners.
    - You have so little time as it is; everything should be smooth so you don't lose any.
- Q & A.

  - Make sure you understand the question.
    - Feel free to ask the questioner for clarification.
  - Keep your answer short and to the point.
    - Don't use backup slides unless necessary.
    - Tokmakoff may specifically ask for these!
  - It's ok to acknowledge gaps in your expertise if you have to.
    - Explain what you do know in this case.
    - You can say something along the lines of, "That's a great idea to try. We went sort of in that direction, but got X results and decided to stick here. Here's what we did. . . "

- Voice.
  - Volume.
    - Project to the back of the room and spend a lot of your eye contact on the back of the room.
  - Rate.
    - Speak at an appropriate rate for audience comprehension.
    - Slow down for complex or important content.
    - Silence is great for grabbing attention back.
    - You can keep just rolling along through minutia and then pause. . . that will draw the audience back.
  - Emphasis.
  - Style.
  - Pitch.
    - Keep the pitch of your voice at a natural level.
    - Avoid "uptalk" (the pitch of your voice going up at the end of a sentence).

- Handling anxiety.
  - Remember to breathe.
  - Practice and prepare: This helps your confidence and commits much of your presentation to memory.
  - Write out your speech and memorize the introductory (first few) sentences. This grounds you and starts your momentum.
  - Focus and center yourself.
  - Don't view the situation as formal; view it as a conversation.
    - You can feel like you're having a conversation with a particular person in the audience.
    - No one is perfect — a conversational style makes it easy to move past mistakes.
  - What if you freeze up or forget part of your speech?
    - Pause, take some deep breaths, reorder your thoughts.
    - If paralyzed, stop speaking and refer to your outline to reorient yourself.

- Takeaways.
  - Audience, message, medium.
  - Clarity and concision.
  - Connect with your audience.
  - Patience.
    - Practice until you're bored to tears of practicing.
    - A minute of speaking equals an hour of preparation.
  - Pace yourself.