**Brock’s guide to making a great talk**

This is a general guide to making and presenting talks for seminars and conferences. It is based on the successes and failures I have had in my years of giving talks.

**A) What is a conference talk?**

The best conference talks are stories. A good story has a clear (and in the case of a scientific talk: true) beginning, middle, and end. It is the responsibility of the speaker to guide the audience through this story highlighting the important plot points and leaving avenues for questions at the end. A conference talk is on a single topic and should flow organically. You should not jump between disparate topics. Keep it simple.  
  
**B) How do you start constructing a good conference talk?**  
The best way to start composing your talk is to get a pen and paper and write an outline. I usually start here:  
  
*Outline*

*1) Introduction (Beginning)*

* Big topic (Evo Bio, IPM, some theory)
* Critical gap
* Your question

*2) Methods/Results (Middle)*

* How you addressed the question
* Main results and how they support (or refute) your primary point

*3) Conclusions/Discussion (End)*

* Summarize points
* Discuss next steps

This is a general outline that I would use for a talk. The challenge becomes fitting all of your data into here. I find that focussing on your major results helps. If you have a figure that presents a major finding, it should probably go in the talk. If you have a figure that supports that major finding, it *could* go in the talk or it could go at the end and be brought up during the question period.

Once you have the outline made, then you can easily break it down into slides. For example, here is an outline for the beginning of a talk

*1) Introduction (Beginning)*

1. Big topic: Why is there so much phenotypic variation?
   1. Theories about why
2. We haven’t looked at the contributions of epistasis?
3. Hypothesis: epistasis contributes to phenotypic variation.
   1. Predictions

I could break this down into four-five slides: 1, 1a, 2, 3, and 3a. You can (and should) play around with how to do this on paper before you even open Keynote, Powerpoint, etc. This allows you to as well consider the story-telling aspect of talk making. You can begin looping topics back and referencing previous slides. For example, if I opened with a discussion on phenotypic variation in my introduction, I should end on a discussion with the same topic, adding in how my work expanded our understanding. You can also begin drawing (yes, drawing) slides for each topic. I don’t have a rule for how many slides one should have for a talk of N minutes, but I try to keep myself to one slide per minute, excluding any animated slides.

In the end, you will likely only have about 60-80% of the work you’ve done in the talk. This is good. First, it allows the audience to ask you questions about that 20-40%. These questions are then easy and you look like a pro. Second, it reduces the story to its essential components.

**C) Constructing slides: What makes a good conference slide?**

I usually construct my slides based on the major points they address. Each slide is titled with a sentence by that major point. It contains a figure, image, and/or text block making a single point. It tells the audience everything it needs to and nothing more. I follow Edward Tufte on this point: a good slide provides the maximum amount of information to the audience using the least amount of ‘ink’. Here, ‘ink’ is anything on the slide. A slide that contains a background image, a barplot, and text telling the audience what is in the barplot contains more ink that a similar slide which contains only a barplot and a title.

Simplicity is key. Simple designs maximize information output and also avoid ugly design. Ugly design can be distracting. A white figure on top of a designed background looks silly if the figure leaves a white box around it. Keep typefaces and colour palettes simple: 1 typeface and only a few colours. Use those colours consistently throughout. Maybe use them to highlight a specific sample and keep using them. Consider your audience in every aspect of this too. For example, avoid reds and greens so that your colour-blind audience members can still understand a plot clearly.   
  
 If you want to present an image in a slide, use an image with a white or black background on a white or black slide. Alternatively, have the image fill the whole slide. Add photo credits in 10-pt on the bottom of the slide.

I recommend a ‘sign-post’ slide. This is a slide presented at the beginning of the talk that outlines to the audience what the talk is about or what it is going to cover. For example in the example above, a slide of 3a might be a simple list of my predictions. The audience knows I will be testing them. I can bring this slide back every time I introduce a new prediction to be tested. These slides don’t add to the story but they help the audience follow the plot.

Each slide will tell the audience only a single part of a story (with some exceptions). Unless necessary, you should avoid having more than one plot on a single slide. If you must, you can cover them with animation and reveal them when you see fit.

Once I have made a slide, I ask myself two questions: is it clear in both its message and its presentation? Does it add to the story (or does it help flow)?

**Some specifics**

Your title slide should include your name, the names of all your collaborators, their affiliations, and any social media information you want to include (e,g, Twitter). I prefer talks to not be recorded at meetings so if that is asked of you, run it by me first.

**Take-aways from section C:**

* A slide is typically only one point of your story.
* Keep your design simple and clean: no background images, simple fonts, white (or black) backgrounds, avoid jarring edges. Keep typefaces simple in design and their sizes consistent and large. Maximize information presentation.
* It helps if the slide has a title that tells the reader some part of the story. Sentences are best. This also helps you tell the story better and helps should you forget.
* Consider ways to create ‘sign-post’ slides

**D) Presenting to yourself**

The best talks are practiced. Never give a talk without first practicing.

When you have your slide deck ready, it’s time to practice presenting. The first time, I usually sit at my desk and speak it out loud to myself. I don’t write a script, but for some this helps. I find scripts can cause some nervousness: if I forget a line I’m lost. This might not be the case for you. What I do is practice my major points for each slide.   
  
Practice transitions between slides: what do you say that leads from one slide to another and how do you say that? If you can’t remember transitions, add text, an image, or something to the slide to help remind.   
  
Practice presenting each figure. Explain each axis, the points, and mention the major findings (which should also be the title of the slide).

When you think you’re ready to present the slides, it’s time to give the talk to yourself in full.

**How to practice your talk by yourself:**

1. Find a private room and set up a projector if you have one.
2. Set a timer and begin your talk as you would to an audience. You should be standing, not sitting. You should be projecting your voice.
3. While giving the talk, note down where you stumble or where you think the audience might be confused.
4. At the end of the talk, note the time.
5. Return to the rough parts and fix them. Often this could be fixing spelling, sizing, adjusting for clarity, or moving a slide around.
6. Repeat 1-5 until you have a clear talk. You should be able to open to any slide and start. You should also be able to be interrupted and begin again.

Practicing like this is powerful. It takes away the stress during your talk. You know what you’re going to say. You could have someone ask a question in the middle of your talk and jump right back in. The conference could lose power and you could draw each slide from memory and laugh along with your audience at the fact that you can do that.

**Things to avoid including in your practiced talk:**

1. Cliches (please, please don’t show us [the sequencing-cost plot](https://www.researchgate.net/publication/311104918/figure/fig1/AS:565311150792704@1511792089405/Graph-of-Cost-per-Genome-This-graph-illustrates-the-nature-of-the-reductions-in.png) or mention [Darwin’s Special Difficulty](https://zoo-kfoster.zoo.ox.ac.uk/sites/default/files/files/Ratnieks2011BES.pdf))
2. Social references that might alienate your audience - there is some variation here. The odd Star Trek, D&D, Friday Night Lights, Buffy, Rick and Morty, Kendrick Lamar, or Adventure Time reference might be OK but don’t base your whole talk on social references
3. Politics unless necessary for the context of the talk
4. Anything that is against the conference or the lab’s codes of conduct.

**E) Finalizing the talk**

Present the talk to an audience before the conference. Everyone in the lab is required to present their talks at least once during lab meetings prior to any talks they give. This is to help you make it better, make sure that all your co-authors agree to what is being presented, and to help you field questions.

Once you think it’s ready, save your talk in the appropriate format. If you’ve jumped between file formats **always** check the resulting talk in detail on the machine you’re presenting on or one similar. If it looks good, save it in a cloud somewhere as well as on a USB. You’re ready to conference.

**F) A whirlwind of presentation tips**

Everyone has their own presentation style. I am going to list some tricks I use during my presentations that help me with my style. Feel free to use them.

1. Everyone is nervous before a talk. One approach to overcome this is to ‘trick’ yourself into thinking it’s not nervousness but excitement. Say ‘I am PUMPED to give this talk’, get yourself psyched. You’ve practiced, you’re ready.
2. I have found that an engaged audience helps a presentation. If you can get them engaged quickly, it helps. I find that faking engagement helps. Look at a few people at different parts of the room during your talk. It makes it look like you’re engaging your audience and makes the audience feel included. It’s smoke and mirrors, but it helps!
3. Sometimes the odd joke or quip works to loosen up the audience. I don’t always do this but sometimes it can help.
4. Use the microphone!! If there is a mic, use it. It’s not there for you, it’s there for people who are hard of hearing.

**G) So it’s question period**

1. When a question is asked, always repeat it. This does 2 things: it gives you time to think and it helps the audience know what was asked.
2. If you didn’t understand, you can ask again. Remember to repeat it though.
3. It is OK to say ‘you don’t know’ to a question.

**For posters:**

http://betterposters.blogspot.com/

**Additional Resources:**

“Beautiful Evidence” by Edward Tufte

https://bitesizebio.com/29880/great-scientific-talk/

http://www.cgd.ucar.edu/cms/agu/scientific\_talk.html