

PREPARING A SCIENTIFIC CONFERENCE TALK

Unfortunately these days “preparing a talk” is usually taken to mean “working on your PowerPoint slides”. It is true that if you start your preparation by putting together your PowerPoint slides, you will produce a memorable talk. The only thing your audience will remember is how bad it was. I hope that, by now, if you have been listening to me and you agree (you are free to disagree), there is a lot more to it than that. The preparation begins long before you open PowerPoint.

Some things you have to keep in mind, in no particular order of importance:

WHO? Your audience: expertise, interests, age, size, comfort level, etc. Will you be able to ask your audience to participate? Etc.

WHERE? Where will you be talking? How big is the room? Where is the stage? Is there a podium? Where will you stand? Will you need a microphone? Can you rearrange the room? Is there a pointer? Should you use it? Etc.

WHY? Do you actually have something important to say? Are you excited about it? If you do not care, it is guaranteed your audience will not care. If you DO care, why do you think your audience cares? How is this talk relevant to them? How is it relevant to the scientific community? What is your general or final message? Can you manage your nervousness and morph it into excitement? Are you happy to be giving a talk? (yes, it will show). Are you willing to give something of yourself to this audience? Will you actually try to connect with the audience? Etc.

WHAT? Do you have a subject in mind? Was a topic suggested? Are you confident you have a reasonable level of expertise on the subject? If not, can you make yourself an expert by the time of the talk? Do you have other topics? Etc.

HOW? Is your voice okay? Have you tried humming? Can you manage your hands? Do you play with the change in your pockets? Do you cross your arms? Do you pace too much on the stage? Do you sit on tables? (I reluctantly accept that one!). Do you have crazy legs? Do you flick your hair? Can you maintain eye contact with the ENTIRE room? Is your zipper up? Is your wardrobe appropriate? Do you enunciate words? Have you talked about this to your baby? Are you able to vary your pitch, volume, speed? Can you include some pauses after important points? Will you hide behind the podium? Etc.

Now, after you have thought about ALL these issues, preparing a talk becomes very easy. It is just like writing a paper, without all the writing. It consists of 5 parts:

INTRODUCTION (What and why?)

What was done and why? Some people like to start with a succinct statement or question. State what you did and put it into context. Show the big picture; state how your study relates to it. Why is it important? To you? To the audience? To others working in your field? Is there a general misunderstanding or misinterpretation that you hope to address?

If you want to call it science, it must include at least ONE HYPOTHESIS (PREFERABLY MORE) AND TESTABLE PREDICTIONS (PREFERABLY MUTUALLY EXCLUSIVE), WHICH WILL ALLOW YOU TO DIFFERENTIATE BETWEEN THE HYPOTHESES.

The power of your hypotheses could vary from those hypotheses having deep implications to all of humanity for the next 2 centuries, to those having minor implications to people working on your field for the next 2 years. That is the difference between publishing the associated paper in the top international journals or the small local ones. That is okay, but in either case, the hypotheses and predictions should be CLEAR and EXPLICITLY STATED!

METHODS (How? Briefly)

Specify how you went about doing what in the introduction you said you were doing. Usually the goal of the methods section is merely to give people a “feeling” of how you went about gathering your data. It might be a good time to include a few cool photos of you at work, but do not get carried away. It is not about cute photos, is it? Stay focused on the goal of the talk, as stated in your introduction.

If you use standard methods it is probably NOT necessary to go into extreme detail. Unlike the situation when you WRITE a paper, the goal in an oral presentation is NOT to give enough detail so people can replicate your study. People who might want to replicate the study will have to read your paper. The goal in a talk is to give enough detail so people roughly understand how you did it.

Of course, if the goal, as stated in your introduction, was to compare two (or more) methods of doing something, then you need to explain in sufficient detail the differences between the two (or more) methods.

RESULTS (what did you get?)

You do not have to show ALL your results. For a 10-15 minute talk, 3-5 data “slides” is probably enough. This is the meat of the sandwich. There is no point on flashing them on the screen for 5 seconds; you have to explain each one, S..L..O..W..L..Y... ..A..N..D... ..C..A..R..E..F..U..L..L..Y. At the very least, even for the most intuitive and simple graph, each slide should take 30 seconds.

For example, let us think of a VERY simple graph. Fill in the blanks for an imaginary graph, or a real one from your work, and then read it:

“On the y axis is the _____ (what) measured in _____ (units), ranging from 0 to 100, and on the x axis the _____ (what) measured in _____ (units), ranging from 0 to 500. PAUSE The red line indicates _____ and the black line indicates _____. As you can see, they both have the same origin, so the intercepts are not significantly different, but the red one increases at a faster rate than the black one and the slopes are significantly different, which means that my hypothesis, **which predicted different intercepts but similar slopes**, is sadly incorrect on both counts. (Make a sad face ☹ and PAUSE AGAIN, for 2 seconds)”.

How long did it take you to say that?

And that is the simplest possible graph I could think of. If you have a more complex graph, you should take more time.

If you have to draw attention to an area of the graph or a particular point, PLEASE DO NOT USE A LASER POINTER. Use a stick. Better yet, that is the moment to use one of PowerPoint’s fancy features!!

Each graph should have a SHORT title, not just saying Y vs X, but stating the main result (s): “A increases at a faster rate than B”. Yes, even though it is up there you STILL have to say it.

So, explain the axes, explain the data, and give a conclusion.

If you have a series of graphs with the same axes, say “the next 3 graphs have the same axes). And again with every graph: “here the axes are the same as in the last graph”. But first think, do you really need all 3 graphs???

CONCLUSION-DISCUSSION (so what?)

Summarize your results. Yes, we have already forgotten! No, we cannot go back a page and look for them as we do when we are reading.

Relate them back to your initial goal and hypotheses. Yes, we forgot those too!

Remind us of why this is important, to you, to others in your field, to us.

Now that you have done all this work, how has your/our view of the world changed because of YOUR study? If nothing has changed, you wasted your time, and ours.

What new avenues of research become evident? What questions remain or are now more likely to yield answers.

And finish off with one summary statement. Why is this cool? Exciting? What should we remember about your talk?

QUESTION PERIOD

In a 15 minute conference presentation, you will have time for 2 or 3 questions, so make the best out of them. In an hour-long departmental seminar, you will have 10-15 minutes of questions, so make the best out of them. So far you have done a great job. This is not the time to freeze or to refuse to answer or to screw up. If you do, that is all people will remember!

Read again the bit about introducing a speaker, but think about it from the other side. Remember that you are the expert here.

Is the question unexpected? That is why we tried those impromptu sessions. Be ready not only to answer but to elaborate on the question. Yes/No answers are okay when you are testifying in court, but not here.

Do not be afraid. Relax and smile. Address the person asking the question, but do not ignore the rest of the audience. Maintain eye contact with everyone.

Do not refer back to the screen as if some graph were still there. It is not, and we forgot about it already. Do not flick back 110 slides to find the one being discussed. Instead, have your key graphs duplicated at the end of your presentation, where it will be easier to find them.

Do your best not to be annoyed by stupid questions. You will often face someone who will ask you whether you tested HIS hypothesis, or worse, why you did not carry out a completely different study to test his hypothesis. This guy is the same ominous reviewer number three when you submit your paper to a journal. In any case, politely, calmly, and with a smile, perhaps ask him to elaborate on how whatever he suggested would help you to test YOUR hypotheses. Perhaps dismiss him with “thank you, that will be a fantastic idea for my next study. Next question”

If you know it is your final question, try to bring it back to YOUR main message

NOW, AND ONLY NOW, YOU MAY OPEN POWERPOINT

Which then brings all sort of new potential problems, particularly:

TOO MUCH WRITING. Your audience has a choice or either reading or listening to you. They cannot do both! At the most, use “bullet points” with very few words. There is a perfect correlation (or is it causation?) between how much writing you have on the screen and how bad your talk is.

CRAZY EFFECTS.- Put on some crazy effects and that is all people will remember. If anything, fancy effects must be there for a purpose. For instance, once, to emphasize a process that was very slow, I created an effect whereby the final line, “it is very slow!”, showed up on the screen one letter at a time, taking about a minute for the sentence to be completed. The audience was perhaps annoyed, but they remembered the point.

POOR CONTRAST.- It might look great on your screen, but it might be invisible on the screen, invisible to colour blind people, or as visually offensive as the clothes I used to wear back in the 80s.

Finally, practice your talk by yourself, then in front progressively more critical audiences: your dog, a non-specialist but slightly smarter friend, and your lab mates. Ask, beg, and, if necessary, pay for CRITICAL feedback, even from your dog, and change your talk accordingly.

NOW, AND ONLY NOW, ARE YOU READY TO GO PUBLIC WITH THIS PRESENTATION.

GOOD LUCK!