

Week 1: What is scientific presentation?

A researcher has to do many kinds of scientific presentations. You may have to lecture an introductory biology course to 500 students, give a talk to a diverse audience at a NIG open house, or speak to an equally diverse but highly professional audience in Stockholm. Unfortunately, this course will NOT help you to prepare for such talks. However, it is designed to help you give a D2 Progress Report, make a 15 minute presentation at a scientific conference, or give a seminar in a job interview --- and do so in a style so that the audience will regard you as a wonderful researcher worthy of advancement to D3, will seek collaboration and advise, and will offer you a job.

In the first session you will be viewing videos of two scientific presentations. One presentation is more of a lecture-type style. It gives a lot of information and background, however does not have a well-developed story line. Another presentation is the type of scientific presentation we will be aiming for in this course. After watching the videos we will discuss the differences in style and effectiveness. In the following we have listed some of the points we plan to discuss. If you have never heard about such points, we highly recommend that you attend this course. If the arguments sound familiar, then please join the course and put the theory into practice.

A. The Question

In a scientific presentation, the presenter must have a key question or hypothesis, and clearly address it at the beginning of the presentation.

Problem 1: Unclear key question

The most common and also the biggest problem in presentation is that the key question is not clear. In some cases there are no questions at all, and in other cases, too many. With such a presentation the audience will have a hard time figuring out the goal: where exactly the speaker is taking them. While it is not impossible to include two questions in a 20 minutes presentation, justifying the importance of both questions is not easy, and you will need to think very carefully about the structure of the whole presentation.

Problem 2: Disconnection of key question and results

The question must be directly connected to the conclusion of your study. Generally, it is a good strategy to provide a big picture and a broader question in the beginning, to give a clear guideline for the ultimate goal. But for this strategy to work, the question must highlight YOUR OWN research findings. Students working in a lab often fall into this problem. The labs as a whole usually have a large common theme they are pursuing, and individual students are assigned to small parts of the big theme. Many students start their presentations by talking about the larger question being addressed by the lab as a whole, and end up using a lot of background information borrowed from their superiors. Then they go on to present the results of your own work, failing to provide a direct answer to the big question posed in the beginning regardless of how much merit their own work may have on its own. Rather than

starting with the big question of your lab, you could think about a simple direct question which is unique to your own study. This will have much greater appeal to a scientific audience. After all, they are here to listen to YOUR presentation, and not that of your lab PI.

Problem 3: Late introduction of the key question

This problem arises when the question being addressed appears far too late into the presentation. The audience is always looking for the goal. Only after the audience is convinced that they find a key question, can they begin to understand the purpose of the presentation and start listening to the rest of the talk with confidence, looking forward to hearing the answer to that question. Therefore, the question must be presented early on. In a 10-15min talk, the audience probably expects a clear indication of the key question within the first 2 minutes. There are many ways to indicate what the key question is; you do not necessarily have to present it in the form of a question. The important thing to keep in mind is that the audience needs to know what the presenter is going to address “at the earliest time possible”.

Problem 4: Unjustified key question

In general, a scientific audience will want a perfect correlation between the key question and the conclusions of the study. Occasionally, however, an audience may desire to see a little more embellishment of the key question. Let's assume that you wished to classify neuronal subtypes in the midbrain of a rare frog found in Philippines. Thus your key question is “what kinds of neuronal types exist in this specific brain region of this specific animal?” Even though it's a completely new study, the audience may not find the question justified, and react, “So what?” The audience is left wondering WHY the researcher has chosen to study this particular and very specific question. But what if this frog was the only amphibian that can “learn” to sing a mating song from his comrades, and the secret behind this ability may lie in the midbrain? We often criticize this kind of presentation for lacking purpose, when in fact it is not the purpose but rather the reason behind the purpose that is missing. This problem also arises when we are developing a new method without explaining the intended application of the method.

For the following topics, only the topic titles are presented.

Join the course to learn more about them!

B. The Introduction

Problem 5: Confusion of “Introduction” and “Background information”

C. General Structure Issues

Problem 6: Paper-like organization of the presentation

Problem 7: Japanese way of story telling

Problem 8: Chronological vs. logical ordering of the data

Problem 9: Too many methods