Golden rules for giving a seminar

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GOLDEN RULES FOR GIVING A SEMINAR

Certain people are naturally talented in clearly expressing their thoughts, but this is not the whole story. Everyone can learn to give good presentations, but of course it takes practice, the more the better.

Here are some rules you should consider preparing your talk for a seminar:

Give a general introduction to the field you are working in. Are you studying earthquakes, a strange ethnic culture or anything else? Clearly formulate the problem you want to solve or at least address. Why is this problem of general interest? How does it relate to other scientific disciplines (e.g. medicine, geography)? What are the weaknesses of the existing procedures and tests? What parts of them do you want to improve?

Do not present those experiments which failed because you made a mistake. (Note that this is different from small group meetings where your colleagues can get tremendous benefit from your mistakes by avoiding them the first time they do the experiment). Present only representative data and a summary of your data, we all know that you did a lot more in the lab. Resist the temptation to show off with mountains of data, this will just annoy the audience.

Try to create some tension in the audience, leave people uncertain as to whether you really will achieve your goal till the end of the talk.

Try to act as salesman or saleswoman, think for yourself that you want to sell your work. Never let the attention of your audience waver, if this happens, shorten the boring part of your talk.

If you show graphs, gels or other pictures, give every picture a short title so that people who were shortly thinking about their next holidays have a chance to catch up again. Mark important things on the picture not just with lanes 1, 2, 3, but with meaningful names that to help understand what one should see.
Keep to a minimum esthetic standard. If your handwriting looks terrible (like mine) make the effort and label things with the computer. It just looks so much more professional than some illegible scribbling.

Don't pull out of a drawer an old figure containing information that you will not discuss. Figures should show as little information as possible, just the things you're going to talk about. Sometimes it makes the presentation much clearer if you draw your own models; of course sometimes a copy from a book is fine, too.

Don't expect too much from your audience. If you present a graph showing the increase in temperature on your balcony from morning to noon, this may be trivial for you who has observed this phenomenon repeatedly, but it might be new for others. Therefore say: "this graph shows the temperature in degrees centigrade (during this time you point to the y axis) in response to the time of day" (while you point to the x axis). It is trivial, but say in your words what you see in that graph and what you expect the audience to see, like "....demonstrating an increase in temperature with increasing time". It may sound too basic to you, but it tremendously helps others to follow you.

If the graph showed a result which is difficult to interpret, give different possible explanations. Tell us how one might test the different possibilities. First describe what the outcome should be (what you expected) then show your result.

Be explicit! If you are a molecular biologist and decide to show e.g. a Southern blot, do not expect everyone to know what this is. For people who don't, this is the trigger to make them dream about the next vacation in the southern part of Europe, Asia and so on. It only costs you 15 seconds to say: "this is a Southern blot where DNA from this and that organism was digested with the restriction enzyme(s) ...., electrophoresed on an agarose gel and transferred to a membrane. The blot was then hybridized with a radioactive probe from......" The next time (within the same talk) you are allowed to expect people to know what a Southern blot is and you may just say what DNA is on the blot and what probe you used.

Use the correct terminology and avoid slang. For example, if you are
geneticists, make sure not to mix up the terms mutation and mutant. It makes a tremendous difference.

Be careful with conclusions, **don't be pretentious**. Be aware that there is no final proof in science. Everything is our interpretation and this is based on our personal restricted view we have of the world. Be aware that reality may be different although our experiments fit well with our models (this is where science meets philosophy). Therefore avoid statements that are too absolute. Even if an experimental outcome seems absolutely clear to you, it's much better to say "these results suggest..." or "these results strongly suggest that temperature generally increases during the daytime". Many people say "This clearly shows that.....".

Try to connect your individual data: for example "In agreement with what we observed on the Southern blot, this experiment supports the hypothesis that......." or "As we already saw on the Southern blot, this experiment argues that....".

Of course **speak slowly and clearly**.

**Speak to your audience** not to the screen.

**Do not read complete sentences** from your manuscript, this makes a clumsy impression, just use keywords as notes and try to aim at giving your seminar completely without notes. You should become so safe in your project that you may keep the logic sequence of events in your brain.

Use the **laser pointer** intelligently, do not try to burn the screen (the intensity of the laser pointer is too weak, anyway) but use it whenever you want to point out something specifically.

Even if it is the twentieth time that you are giving a similar presentation try to act like the things you are telling us are new even to you. **Try to have fun** and enjoy that you have good data to present (this implies that you have good data of course).

**Do not be fixed to the historic sequence** of how you obtained your
data. If you did an important experiment last week and if this experiment would have fitted better at the beginning of your project, feel free to present the data as if you did last week’s experiment two years ago. This has nothing to do with fraud as long as you did the experiment correctly. Arrange the experiments in the most logical way, independent of the time of their performance. This holds true for writing papers.

Always show and discuss controls first. If the new apparatus which you have constructed allows you to transform the appearance of a rat into that of a frog, show us your "frog", but first show us what a control (a rat) looks like. Everybody knows what a rat looks like, nevertheless show us the control, it's much more easy to follow and sometimes the differences to the control may not be so dramatic as in your particular case.

**Be prepared to answer questions.** You must know exactly why you did the experiments. Don't say your boss wanted you to do this experiment. It must be you who was interested in doing this particular experiment, an interest which may have arisen in discussions with your supervisor and colleagues. Therefore you must know a little more of your research field than what you will talk about.

If you do not understand the meaning of a question from someone in the audience, try to find out what this guy want’s to know from you exactly, rather than saying something which has nothing to do with the posed question. Sometimes the "question-and-answer game" sounds like: (question) "Is it possible that a froglike rat will also arise by treatment with xyloquadromaconin, which has been shown to experturbate polyanionic compounds at high pH?" (I bet you will not understand this question, I don't either!) Since you don't understand you try to save your skin by answering "Well, in our experiments rats developed the green color with a statistically significant value of p less than 0.05. But as concerns your compound, which of course shows this important effect, this hasn't been followed up in our lab" (and you eagerly look around to see if somebody will ask you an understandable question and release you from that nasty person). Please don't play this game (although it is very common among scientists). If you do not understand the question for any reason, ask the person to reformulate his/her question and try to repeat in your words what the question could have been. Remember, you are not stupid, and very often it is the case that the person from the audience has misunderstood something from your talk which you now
have the chance to clarify. Don't be too shy to say "Sorry, I didn't understand your question".

With every seminar you increase your clarity of expression and decrease the adrenalin concentration in your blood during preparation and "on stage". You may not experience immediate improvements, just as you didn't consciously experience growing up, nevertheless you will note improvements over a longer period. And believe me: at a certain point you will even enjoy the act to present your results on a meeting with a large audience.

-Christian Sengstag

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