Suggestions (reminder) for improving the quality of your presentations:

STEP N.1 A brief summary about the Scientific Method.

Scientist use the same core approach to find answers that are logical and supported by evidence (Fig.1).

The Scientific Method is:

a) based on very simple and straightforward rules;

b) used universally in all sciences;

c) like a ladder, made basically of eight rungs: i) make an observation; ii) ask a question; iii) form a hypothesis, or testable explanation; iv) make a prediction based on the hypothesis; v) design the experiment; vi) test the prediction; vii) gather data; viii) iterate: use the results to make new hypotheses or predictions.

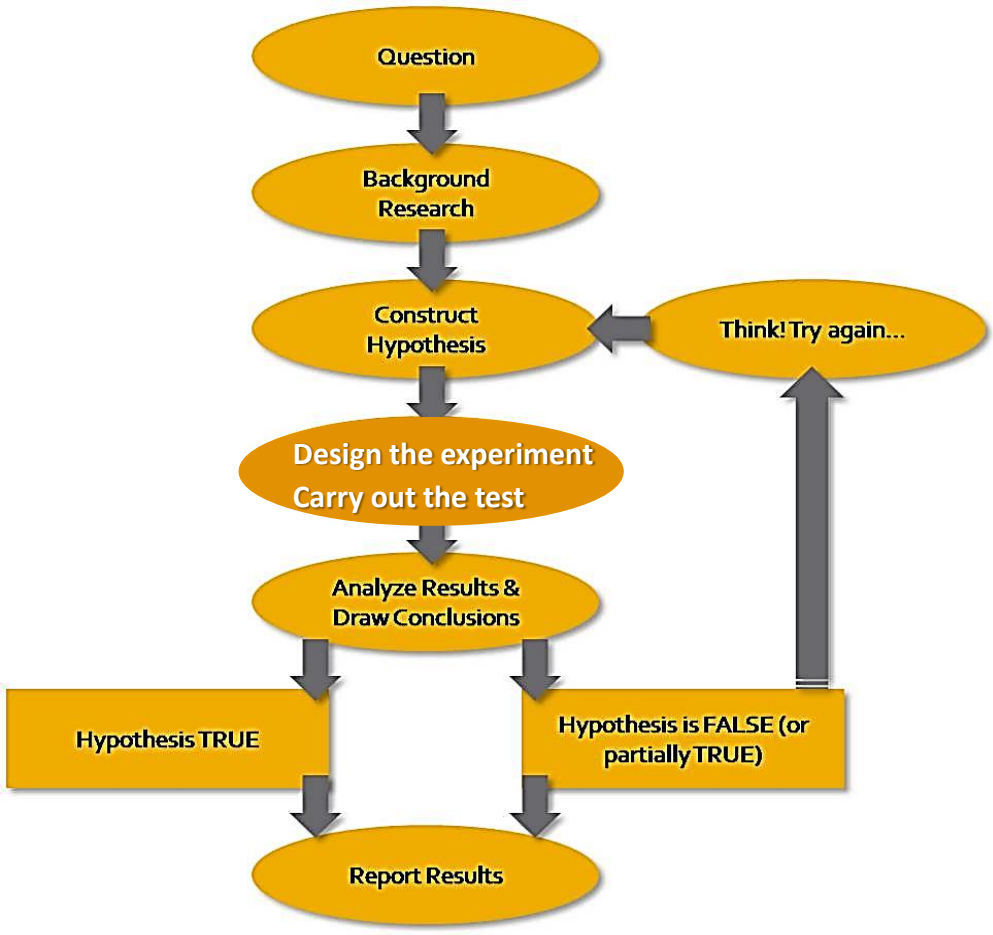

Fig 1. Process Flow Diagram of the Scientific Method

NOTE: Try to fill each oval with your stuff. If one (or more) of the ovals is left empty, there might be a problem. Consult your supervisor!

STEP N.2

Ask yourself “Do I have enough experimental evidences (data) to support my hypothesis?”

Careful, this is not a trivial question, also for highly experienced scientists!

STEP N.3

When you reach the last oval (‘Report Results’) you are **NOT** at the end of the work, although this is the last block of the diagram.

Now, you have to start a brand new session, which requires a lot of energy and fantasy (as much as the work you have done so far).

In fact, you have to convince your colleagues, the scientific community and in some cases the common people that your results are:

- Valid [the results of your study measure what they are intended to measure],
- Reliable [the results are consistent/reproducible over time],
- Strong,
- Conclusive [or preliminary],
- Applicable to somehow related problems.

STEP N.4 Presentation of the results

Again, you have to fill the ovals (Fig.2) and answer some basic questions:

- Which is your audience? [Undergraduate students with little background? PhD students working in unrelated fields? Researchers with long-lasting experience in your field of work? Department Meeting? Lab Meeting? International Congress?]
- Do you want your presentation to be clear, understandable, effective and sound?
- Do you know that even the most experienced researchers in the audience do not know anything about your recent experiments/ results/ data?

- Can you distinguish qualitative data from quantitative data in your work?

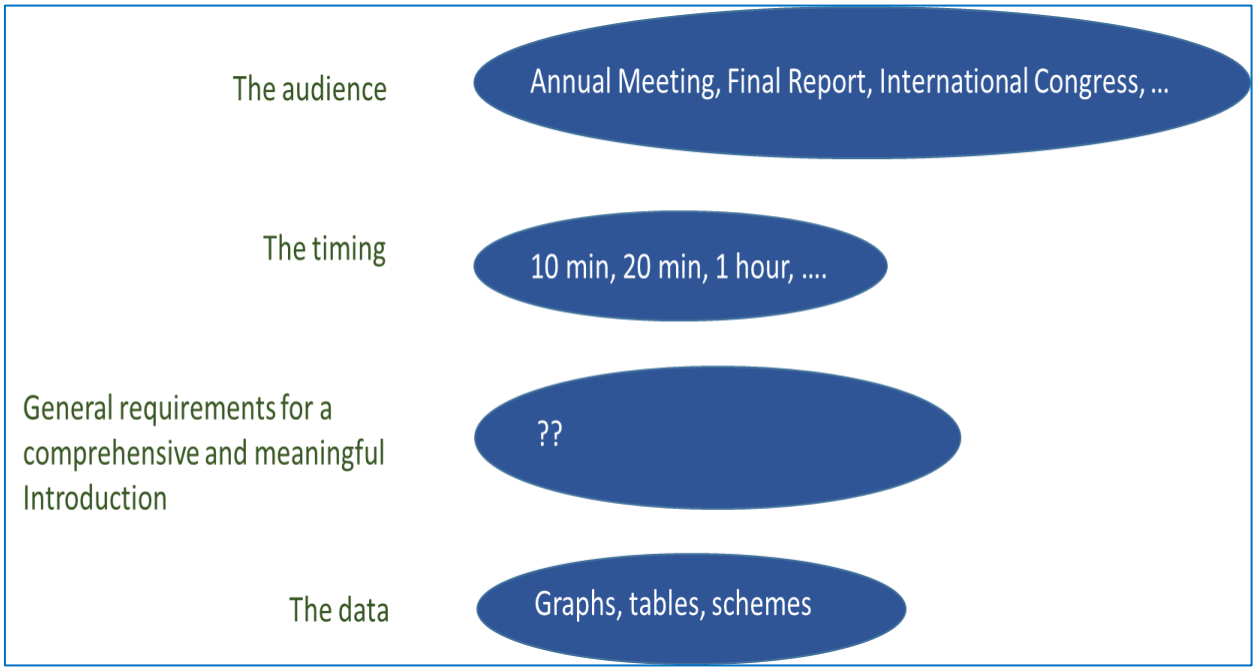

Fig 2. Things to consider before writing a Power Point presentation.

Keep in mind some basic (and universal) rules:

a) The “presentation” is the act of displaying data/results/achievements to a public, and it is made by a ‘person’. Slides are only a **SUPPORT**, they are intended to HELP the speaker, as well as the audience. It should not be the other way round! Thus, first of all **you and your talk** have to convince the audience of the importance/relevance of your results. Do not forget this key issue!

b) In all disciplines, data are considered valid only if they are supported by a solid STATISTICAL ANALYSIS (e.g. error bars). If statistics is missing, you simply cannot present your data. If you do it, somebody in the audience will raise his/her hand and will criticize your work.

c) Avoid a highly specific jargon. Explain the meaning of the acronyms, even if most of the audience may know their connotation. Write at least once in your slide what the abbreviation stands for.

As an example, even a commonly used acronym like GTP may mean:

Guanosine Triphosphate, Glutamic-Pyruvic Transaminase, Global Tungsten & Powders, etc.

d) Explain the name of the RELEVANT proteins/enzymes you mention in your talk (e.g. PKC → Protein kinase C)

As above, explain the name of:

genes (*brcA*, *rpL*, *gdh*, etc.), non-coding RNAs, modifiers (e.g. enzymes modifying RNA or DNA; enzymes introducing or removing a phosphate group into/from proteins), molecules that are really relevant for presenting your data.

If they are NOT relevant, remove it from the slide, and do not mention in your talk.

Needless to say that, if it is known, also the function (or putative function) of the enzyme (or the gene, or the microRNA, or the receptor) should be indicated.

e) very, very, very little is known in most of scientific fields. Thus, a good presentation should clearly indicate what is known, what is not known and what is mere speculation.

f) DO NOT OVERLOAD your slides with graphs, schemes, diagrams, list of genes, etc. The slide MUST contain the information required to support your ORAL presentation, ONLY!

g) It is absolutely required that each graph contains all the information necessary for evaluation by the audience:

title, units on both X and Y axis (using a READABLE Font!), different colors or different symbols for different curves, standard deviation on top of histograms.

EACH graph shown on the slide should be presented, described and discussed, if it is relevant for the work. If it is not relevant, it should be discarded. It is NOT a good practice to show a myriad of data without explaining how they were obtained and what they mean. Much better to show a single graph, of a single experiment, but in a well-organized and convincing manner.

h) make sure (by trials) that your presentation fits in the given time frame.

In summary:

1. introduce the scientific problem you are dealing with in a simple and direct way. Non-expert should be able to understand the focus of your work;

2. organize your slides in a way that they are easy to understand;

3. present your results effectively;

4. Use Tables, graphs and figures judiciously. They all should match with your speech;

5. All the data and analyses should be presented in an orderly fashion, and the logic inherent in that order should be made explicit.

6. The amount of data presented should be sufficient and appropriate (in logic and in time). Do not forget to present your data in parallel with control experiments or control groups, when required.

7. Avoid ‘visual illusions’ associated with your graphs, due to improper scale settings.

8. Avoid histograms with bars either missing the code/identification name or bars labelled with non-readable code (font error).

9. DO NOT OVERWRITE your slides.

10. Investigate the work of Albert Mehrabian on Nonverbal Communication. You may find interesting hints.