

# MSc Science and Technology of Nuclear Fusion

## How to give a good presentation

### 1. Be aware of your audience and the purpose of your talk

First of all, when you prepare a presentation: *ask yourself what you want to achieve*. This may be different, depending on the audience, the occasion, ... In some cases the content of your work may be central (e.g. in a workshop with colleagues); in other cases you want to make the audience enthusiastic about your topic (without them necessarily understanding it); in yet other cases you want to sell yourself rather than the topic (e.g. when you apply for a job).

But no matter what the purpose of your talk is, you always want your audience to say to each other: 'wow, that was a really good talk' when they come out of it.

Giving a good talk is something you can learn. Here are a few tips.

What follows is primarily aimed at the sort of talk you'll give at the end of your graduation project. So, the audience are students, supervisors, perhaps a few outsiders. But basically, a technical audience, to whom you have to present your work in such a way that it can be judged on content, but in a nice, professional style with well-prepared graphics. Note that in a technical meeting in a project, or even in a scientific workshop, the requirements can be very different. Then it is all about the detailed contents, nobody cares about the quality of your slides or graphs, you can spend unlimited time on discussing a single data point or term in an equation. That is not about science communication, that is just work.

### 2. You are the centre of your presentation. Your PowerPoint slides are only the supporting graphics.

The audience should be looking at you, listen to you and generally concentrate on you. You are the main act. The slides are only there to support your story.

As a guideline: your slides should contain the pictures that you would draw on the white board if you didn't have a PowerPoint.

Use very little text! (see below). The last thing you want is your audience to be busy reading your slides, probably finishing the text well before you have come to the end of your spoken text, and get bored. Sounds logical, but this happens all the time.

You must not need the slides to help you through your story. You must know your narrative inside out, and you must also know which slide comes next without looking at the screen. Again: the slides are there to support your narrative, they are for the audience. Not for you.

### 3. Practice your presentation

You are going to ask a number of people, perhaps a large number of people, perhaps a large number of busy people, perhaps a large number of busy people with high salaries, to spend time to listen to you. So, it is your *obligation* to be well prepared. You mustn't waste their time with a bad presentation. This starts with practicing your presentation. Make no mistake, all professionals, all these persons you see on stage and admire for their presentation skills, are good because they prepare thoroughly. Practicing means:

- design your talk. Discuss the contents, the line of reasoning, the conclusions, the supporting evidence you want to show, with your supervisor. Try the rough outline out on friends or fellow students.
- go over your talk, speaking your text softly for yourself while going through the slides and make sure that the narrative has a natural flow and logic. Roughly time the talk.
- then do the full 'dress rehearsal': give your presentation to yourself, in front of the mirror. Check the timing precisely this time. Make adjustments where needed. Repeat until everything is fine.
  - The mirror is there because you want to check your body language, the movements of your hands,...these things are very important, too.
- try to get a few fellow students together and present the talk to them. Make final adjustments with the help of their feedback.

#### 4. The structure of the talk

A talk is not a written report. In a report you can – as reader – skip to conclusions, go back to results, fill yourself in on the experimental details..... So, in a report everything must be in place where the reader expects it to be, so that he/she can easily find the bits of interest. In a talk, the audience must live with the order in which you present the material. So, you have to make it interesting.

For example, it often helps to bring a particularly surprising observation or important conclusion forward, even start the talk with it. That will have your audience on the edge of their chairs. Then, you proceed with providing the supporting evidence. This may be the tedious stuff, but the audience will want to hear about it because they already know what it leads up to.

So: compared to a written report the talk may present the same material in a completely different order. This is something you need to try out, see what works best.

Having said that, it is essential that early on in the talk you treat the 'Why?' (motivation), and phrase the Research Question. If you fail to make clear what you were trying to find out in your research, and why this was interesting or important, your audience will quickly get annoyed.

You'll see in almost any presentation that there is a 'table of contents' in the beginning. We advise strongly against this unless it is a really long (>40 minutes) and complicated talk. If your talk is well structured, you should take the audience by the hand at the start and never lose them. An 'outline' in the beginning a) spoils the suspense, and b) is a waste of time.

This is especially true in short talks – the ones that you are most likely be giving, be it to graduate or to present your work in workshops or conferences. Typically, such talks are 12 or 15 minutes, occasionally 20. If you manage to lose your audience in 12 minutes, the structure of your talk is hopeless, and no measure of outlines or tables of contents are going to repair that.

Think of your presentation as a suspense story. How suspenseful is thriller that starts with an outline of the plot? (A clue: not)

DO end with conclusions, though. Make them short and powerful. And leave them on as your last slide, after you finish, so that your audience can read them while they are thinking about your presentation and are cooking up questions.

DO NOT end with a slide that says 'Thank You'. Or 'Questions'. It is useless. Have your conclusions as your last slide.

## 5. References.

In presentations, just like in reports, you must give proper credit to sources:

- if you make a statement (on a slide) that is based on a publication: give a reference to the publication.
  - This may be in fairly small print as a footnote at the bottom of the slide.
  - It serves a double purpose: 1) if something is not your own work, you have to reference it, full stop; and 2) if your audience sees a statement on your slide they will automatically ask for supporting evidence. That is either you (then you can answer that question), or a paper (and then a reference is in order).
- if you use a figure from another source: give the source (either right next to the figure, or as a footnote)
- if you use data from an external source, you must give a proper reference to that source

## 6. The slides: technical requirements.

There are a number of minimum requirements that you have to adhere to. We don't want to see any presentation that does not comply with these rules, not even in a draft version.

- Title slide: use the proper TU/e template. Make sure the title is correct. It should show your name. And it should mention important co-workers, or supervisors, or colleagues/groups you collaborated with.  
Make sure that anyone who has any right to feel partial ownership of the work you are about to present sees that he/she is properly acknowledged.
- Number of slides: typically count 1.5 to 2 minutes per slide. So, for your 15 minute graduation presentation, that would make 7-10 slides. Stick to that rule! It will force you to think very critical about the material you want to show.
- Text: use very little text on your slides – text will turn your 'talk' into a 'read'. The international standard is a maximum of 7 lines of maximum 7 words. Don't write full sentences.
  - Note: if you give an on-line only presentation, the rules are more relaxed because all participants have their own private screen on which they can see every detail.
- Figures: there are a number of requirements you must adhere to:
  - The symbols in your figures must be readable. So, they should typically be 18pt at least. That means that if you use figures from your report, or from a published paper, you must redraw the axis and labels. It is useless and disrespectful to show your audience a graph they can't read.
  - Remove all irrelevant information from graphs. Often a figure that was prepared for a report contains a lot of data and information that is not of direct relevance for your talk. Remove it. Your audience will zoom in on the wrong information, get side-tracked... It is your duty to prepare custom-made figures. Remember: you don't want to waste the time of your busy, highly-paid audience.
  - Since you have so few slides, you must be very selective in the pictures you want to show. BUT: don't 'solve' this by having many small pics on one slide. In a PowerPoint presentation, you can zoom in and out – make sure that every picture gets the full screen when you discuss it. It makes everything more visible and focuses the attention of the audience.
  - Make sure to give correct references when you use pictures from literature.
- PowerPoint: there are all sorts of tricks and animations you can do in PowerPoint. Use them wisely, with only the comfort of the audience in mind. Likewise: use a consistent font set.
- Final slide: Conclusions. NOT 'thank you'. NOT 'questions'.

## 7. Stage presence

I can't tell you how to behave in front of an audience in a few lines. But here are the basics:

- Enjoy yourself, it is contagious. If someone is ill at ease on the podium, the audience will be uncomfortable too. If you are relaxed and enthusiastic, the audience will be happy too.
- Do not look at the screen, address the audience.
- Don't use a laser pointer. If you do, you will almost inevitably turn your back to the audience and point your laser at things or words on the screen that they could just as easily see without your help. Worse, in all likelihood your little red dot will be moving rapidly in circles round the object you are looking at yourself – which drives the audience crazy.
- Establish a rapport with your audience, shift your attention from left to right, but in particular, focus on the last row: if you address the front row everyone behind them will feel left out, but vice versa, by addressing the rear wall, you will make everybody in the room feel included. Talking to the rear wall will also make sure that you speak loud enough.
- During question time: repeat/rephrase the question and *answer to the entire audience, not just to the person who asked the question.*

How to deal with stage fright.

For many of us performing in front of an audience generates some level of nervousness. It is quite natural to feel some tension, I'd even say that that is a good thing. It puts you in a state of heightened alertness. All good, as long as it doesn't hinder you.

Often, the first minute is the trickiest part – once you are in a flow nerves usually go to sleep. So here is the trick: make sure to practice the first minute of your presentation particularly well. So well, that you can do it even when your mental capacity is reduced to 10% of normal because you all your attention to keeping down your nerves.

Now, some of you may not have this issue at all, but for some nerves are a reality that you have to deal with. It is good to know that nerves are very common under even the most famous and successful of musicians – it never goes away, no matter how experienced you are. But you can learn to deal with them. Control your breath (keep it as low as possible); stand straight up; smile – such physical tricks will help your mind to relax.

## 8. If an abstract is required...

In many cases when you are asked to give a talk, you will also be asked to provide an abstract. Sometimes you are asked for just a few lines, on other occasions you may be asked to send an A4 with a nice text and an appealing figure. For the abstract basically the same applies as for the talk itself: think about your audience and give them what you think they need. Depending on the occasion, the abstract may be more of an advertisement for the talk, a teaser so to speak, in which you don't want to give away too much of the actual results. But for a conference, or science lunch, the idea of an abstract is to give the essential information in just a few lines. So that the audience can prepare themselves mentally, and in the case of a conference with parallel session, decide whether to come to listen to you.

Here is a link to a useful set of instructions on how to write an abstract:

<https://urc.ucdavis.edu/how-write-abstract>.

## 9. In summary:

1. decide what you want to achieve with your presentation, having your audience in mind
2. design an interesting narrative
3. make slides according to the guidelines
4. practice makes perfect!

You are asking the time and attention of people. Make it worth their while!