

- **Spotlight**
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10 tips for scientific presentations with PowerPoint

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PowerPoint magic

Have you noticed that in most PowerPoint presentations the slides attract the most attention, not the presenter or the story? Often, there is a lot to take in and read. Whole sentences, in different colours, flying in and out complemented by a mosaic of logo's, background themes and decorations. Sometimes the presenter will paraphrase the text on the slides, at other times he or she will read it out word for word, back turned towards the audience. At times a PowerPoint presentation reminds me of a magic hat from which the presenter conjures various subjects, whilst standing by in the role of supporting cast.

Spotlight on the presenter

In the end, however, the presentation is about you and what you want to tell about your work. The audience will only truly be captivated if you are able to convey a convincing story with enthusiasm, vision and humour, and those are things PowerPoint cannot conjure. You have to learn to stand in the spotlight yourself and tell about your research with conviction. While you're doing this, it is very important to make eye contact with your audience. PowerPoint can be a very effective tool to support your narrative with images and on the basis of my research I want to give you a number of useful tips.



My research into PowerPoint

How do scientists use the PowerPoint-program, do they make effective use of it and why do they use it the way they do? Those are among the questions I have answered in my PhD research.

My thesis can be found here: <http://www.bhertz.nl/english/publications>



10 Tips for scientific presentations with PowerPoint

TIP

1 Pictures, pictures, pictures



Time and again it is scientifically proven that it is far better to show pictures than text on slides. Reading requires a high amount of mental energy, which is fine when you're dipping into a book, but awkward when you're trying to listen to spoken words at the same time.

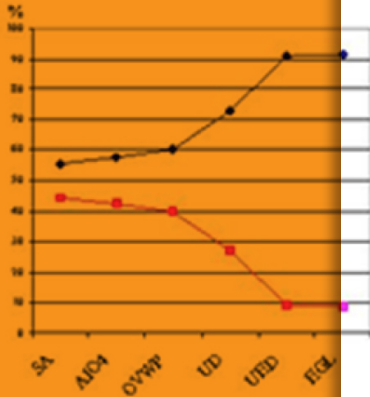
Whenever you show text on a slide, the public will immediately read it all. While doing this they will only be listening with half an ear to your narrative. If, however, you use appropriate illustrations, these can be easily processed by the brain of the listener and will actually make people remember your story much better.

PowerPoint should be used to support your narrative and help the audience to reach a better understanding. By using well-chosen pictures you can hold the attention of your audience, help them to understand your story and also to remember it.



TIP 2 Use functional illustrations

So PowerPoint works best when you're using pictures that support your story. You can show, for instance, what the human eye doesn't normally see (cell structures, planets, broken bones) or give a handy overview of a large amount of data (line diagram, histogram, scatterplot). Use images to show your experimental set-up, simplify complex terms or give examples. Make an effort to find functional illustrations that actually add to your story and try to avoid decorative pictures or cartoons, since these usually don't quite fit in. They will distract from the point you're trying to make and some people in the audience may find them irritating. Fill the entire slide with the illustration and try to avoid any text.



TIP
3 Use metaphors

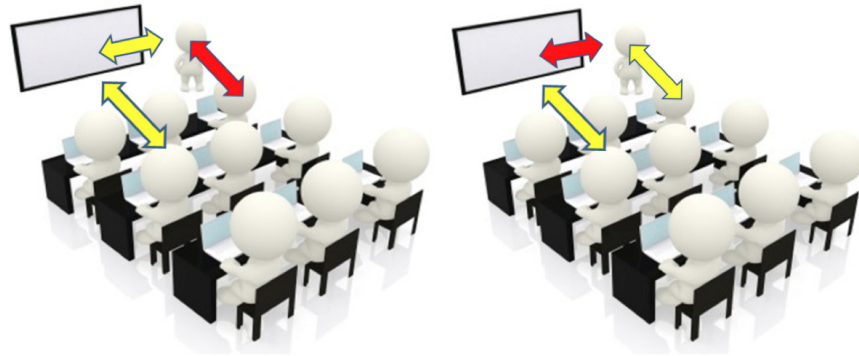
Chemists, physicists and physicians usually have plenty of good quality and clear illustrations at their disposal. But what to do when you're a social scientist and you are not into colliding atoms, laser experiments or defence systems? In that case, think about how to translate things like numeric tables into readily understandable diagrams, or how you can use a metaphor to illustrate the subject of your research. This funny picture concerning overconfidence is a good example.



TIP

4 Use images to structure a presentation

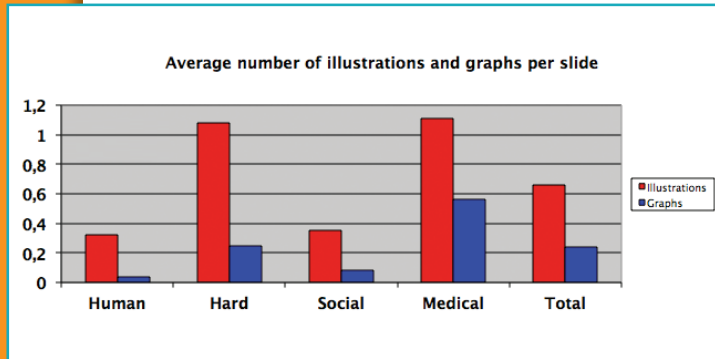
A so-called *graphic organizer* is both a functional image as well as a good way to help your listeners to understand the structure of your presentation. Make a graphic representation of the coherence of the various subjects in your presentation, highlighting the subject you're going to tackle next. You can do this by enlarging it, or giving it a different colour. In my presentation about the effect of PowerPoint on the viewing direction of the presenter and the audience, I chose to do it like this:



TIP

5 A presentation is a performance

A presentation with PowerPoint can be considered as a performance in which your story, the illustrations on the slides and your movements interact. You have to steer the audience's attention towards the projected image at the right moment. This can easily be achieved by pointing at the screen. However, be careful not to turn towards the projection yourself, because then the audience can only see your back and eye contact will be lost. It is far better to announce and clarify what the audience is about



to see. You can say for instance: the next graph shows that presenters from the hard and medical sciences use more illustrations and graphs than presenters from the social sciences and humanities do.

TIP

6 Moderate the information

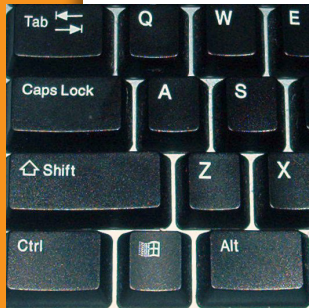
Your audience can only process a limited amount of information. This is no big deal. Your presentation is not meant to transfer as much information as possible, but rather to create enthusiasm for your subject and your research. Important details can be put in a hand-out, or you can give your audience a copy of your paper afterwards. When you do decide to use text, or want to put various pictures in one overview, use the 'Animation' function to moderate their appearance. Refrain from using any of the effects – in general scientists don't like these. It is advisable to get accustomed to using the remote control for moderating the amount of information on your slides or moving to the next slide. Using the remote makes it easier to walk around and keep in contact with your audience. You will make a very professional impression when you're able to do this without looking at the presentation yourself.



TIP

7 Switch off your projection

Only use a projection when it supports your story. When you move on to another subject, switch to a black screen by pressing 'B' on your keyboard (English version), or 'Z' (Dutch version). You can switch to a white projection by using the 'W' key. Navigating directly to a particular slide can be done by pressing the number of the slide and the Enter key at the same time. This can be handy when answering questions about a specific slide.



TIP

8 PowerPoint slides are not speaking notes

So, you preferably use no text at all in your slides and do not turn away from your audience to look at the projection yourself. But what if you need a cheat sheet? In that case you can of course have a quick peek at the screen of your laptop. In more recent versions of PowerPoint you can utilize a split-screen to preview the next slide. You can also use the notation part of the slide for a couple of keywords. Finally, there's nothing wrong with using an old-fashioned piece of paper with some annotations.

My presentation

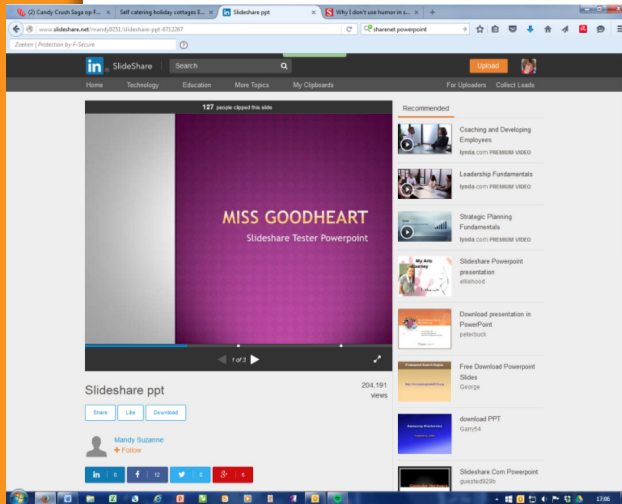
- Who am I, why am I here?
- Why is my research important?
- Which problem am I going to solve?
- Why is this interesting to you?
- What are my first results?
- What do they mean?
- What do I want you to remember?

TIP

9 PowerPoint slides are not lecture notes or minutes

More and more often the slides of a presentation are uploaded to a website to enable those interested who were not present, to 'see' the presentation. It is also customary to distribute the printed slides to the public as handouts. This encourages you to put more text on your slides, to make sure that those who miss out on your verbal explanation are able to understand the presentation. By doing this you're selling short the

people who made the effort to come: they will have difficulty in following your narrative because they are tempted to read all the text on the slides. Make two different versions of your slides: one with a maximum of images and a minimum of text to go with your presentation, the other with an accompanying text, for web usage.



TIP
10 Stand in the spotlight

Using these tips you have a pretty good idea what to put on your slides and how they can best be shown. However, the attention you get from your audience can be awkward. Maybe you would prefer them to look at the projection instead of at you? It is good to know that nearly everybody suffers from a degree of stage fright. How to gain control of your nerves?





- Prepare yourself by practicing your presentation out loud
- Pay particular attention to the way you connect the different parts of your presentation
- Practice in front of some friendly colleagues and ask them for specific feedback on anything you are unsure about
- Ask them to mention at least two aspects of your presentation that they are enthusiastic about
- Know that a certain level of nervousness is good to get in the right mood

It is no big deal if you make a small mistake, forget a bit of text or are unable to answer a difficult question.

Scientific research deserves to be presented by inspired scientists with personal stories, not be beaten to death by slides overflowing with text and bullet-points. Stand in the spotlight and tell your story!

These 10 tips will hopefully help you in preparing and performing your PowerPoint presentations. Of course there is much more to tell about how to give a good presentation. I would very much like to individually coach you, or provide a training course on presenting to your department or group. I have extensive experience with novices as well as advanced presenters, with lawyers, biologists, physicists; with scientists from all disciplines. We have practiced all sorts of talks and presentations, for a department, at a congress, or to gain a multi-million euro grant from Brussels.

If you are interested in any of our courses, please feel free to mail or call:

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Interview with Brigitte Hertz on her research into the use of PowerPoint

By Elisabeth Pain. Jan. 11, 2016

<http://www.sciencemag.org/careers/2016/01/using-powerpoint-shine-stage>

(Pictures added by Brigitte Hertz)

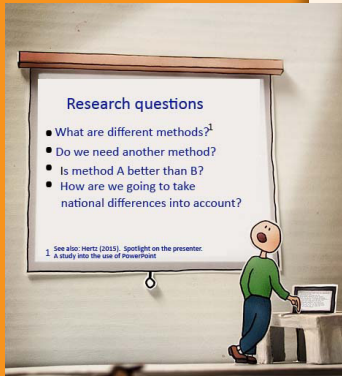


Using PowerPoint to shine on stage

We've all found ourselves sitting through scientific talks that were annoying at best. At conferences and department seminars, it's not unusual to see presenters who overwhelm the audience with information, read entire paragraphs off their slides, or spend more time looking at the projector screen than at the audience. Practices like these make it more difficult for attendees to engage with the presenter, follow the talk, or remember its key messages. Yet, however frustrating the experience of sitting through a poor presentation may be, as soon as it's our turn to come up to the lectern, we often repeat the same mistakes. Why?

That's the question that Brigitte Hertz set out to answer. An environmental scientist and social psychologist by training, Hertz has dedicated the last 15 years to running a company that teaches academic and transferable skills, such as project management and career planning, to scientists. www.bhertz.nl

Recently, she also completed her Ph.D. thesis at Wageningen University in the Netherlands, looking into how the design of slides made with Microsoft PowerPoint, the presenter's behavior, and the audience's reaction affect each other. Presenting is a difficult exercise for most scientists, and Hertz's research offers pointers for how it can be done better. She shared her insight and advice in a phone conversation with Science Careers.



Q Why did you decide to study PowerPoint presentations?

A First, because of the predominance of Microsoft PowerPoint as a presentation tool. Today, 96% of scientific presentations are done with PowerPoint, and this has an enormous influence on the presentation itself. Then, scientists who take part in my training programs have been telling me that they are very dissatisfied with how PowerPoint is being used by presenters. Yet, interestingly, when they are the ones giving a presentation, they usually make the same mistakes as the presenters they found irritating. So, for me, there was an enormous drive to find out why everybody makes the same mistakes, and how we can improve presentations with PowerPoint.

Q What is the audience most commonly dissatisfied with?

A Well, to start with, they don't like slides with a lot of text. Not only do they find that boring, but it is also annoying when the presenter reads out loud what the audience can read by themselves. What also happens is that the audience will start reading the text, but then the presenter will be talking at the same time. We know from research that, when you try to read and listen at the same time, it is the reading that gets dominant, which will make the processing of the oral information less effective.

The other part is mainly that scientists look toward the projected slides a lot when they present. As a result, they fail to maintain eye contact with the audience, which is a very important part of a good presentation.

In my study I found that, during a 20-minute presentation, speakers turn toward



the projection an average of 3 times per minute. Having a lot of text on their slides makes presenters break eye contact with the audience all the more often, as do animated slides compared to static slides.

Q In your thesis, you write that PowerPoint instruction books highlight the importance of having little text and keeping eye contact. What does your research say about why so many people do the opposite?

A One reason I hadn't previously realized was so important is that many presenters use PowerPoint as speaking notes. They love the fact that they can have on their slides all the words they need to remember the structure of the presentation, or words and sentences that they might find difficult, sometimes because English is not their mother tongue. And so what has become a tradition now is to have the outline of your presentation written on the slides and all the important parts of your talk also showing in paragraphs of text.

We also found out from the research that the more nervous you are to give a presentation -and almost everyone is to some degree- the more text there is on the slides. And so PowerPoint has now become a kind of support for the presenter instead of a support for the audience -as originally meant to be- and this flaw has a lot to do with speaking anxiety. One of the conclusions of my Ph.D. is that we should train scientists so that they do not only design their PowerPoint slides bearing in mind how information is processed, but also find other ways to overcome their speaking anxiety.





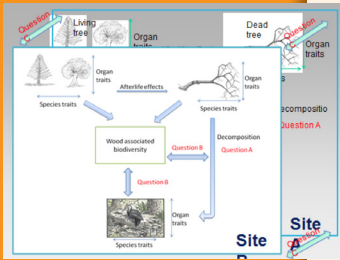
Q What should presenters know about how the audience processes information?

A They should bear in mind that, as an audience, we have a very limited working memory. This makes presenting results by writing a paper and giving a presentation two different exercises. When people read, they do it in their own time and can think about what they read, which they can't do when listening to a presentation. So you shouldn't cram a scientific presentation with as much information as you possibly can, because the audience won't be able to process all that. Instead, what you need to do is tell them a good and simple story and feed them bite-sized pieces of information. Also very important is to make the audience enthusiastic and passionate about your subject, and then, if they really like your story, they will go read your papers afterward to fill in the details.

Q Do you have any advice for how to make your presentation a good story?

A In terms of quantity of content, a 20-minute presentation, for example, will give you just enough time to make an introduction, discuss one or two main issues, repeat some important points to help the audience follow your talk and remember it, and finish on a firm conclusion. Then, in order to engage the audience, you should try to combine what you are passionate about telling them with what they actually want to hear from you.

Another important aspect is to make intelligent use of slides by presenting interesting and functional pictures, rather than pictures that are just there for decoration. Use graphs or nice illustrations of examples that can support your story, because that's what the audience really



likes, and it also helps them process and remember the information. For example, one of the participants in my training courses was researching how trees deteriorate into soil nutrients after they die. On each of her slides, she used the same picture of the decomposition cycle, but whenever she was addressing a new topic she would light up the relevant part of the cycle with a different color as a way to guide the audience through her talk. That was very effective.

Q What are your recommendations for maintaining eye contact?

A My advice there would be to help the audience follow your presentation by using spoken words more than body language. Rather than turning your whole body to make the audience look at the projection screen, keep eye contact with them and talk through your slide by saying something like, “And here what you can see is a graph showing you that A is bigger than B.” Now, if you really want to see what is on the slide, you can just look at the screen on your laptop, because it’s there as well. The newest version of PowerPoint also allows you to see on a split screen what the next slide will be so that you know what’s coming. And if you are particularly nervous and feel the need to have notes, you also have the option to write a couple of keywords right below your slides on your laptop.

And then, it’s also a matter of experience. What I found in my study is that the more experienced the presenters are, the more eye contact they have with the audience. The younger ones are more nervous about that. So just go and give talks, and eventually you will get used to speaking in front of an audience.



Q What else can young researchers do to reduce speaking anxiety?

A First, they should prepare their presentation well, which includes rehearsing it. Practicing your talk aloud will not only give you more confidence, but it will also help you find out if some of your ideas or sentences don't run smoothly, or if your presentation is too long. Otherwise, you will only discover these flaws during your presentation, which will make you all the more nervous. I believe that, when people are really anxious, they sometimes skip rehearsing their talk because they find it a challenging exercise in itself. But, by all means, they should ask supportive colleagues and friends to give them constructive feedback on what they can improve.

It's also important to be aware that nothing terrible is going to happen if you find yourself at a loss for words at some point during your presentation. It happens even to the most experienced presenters. The difference is that they will be unperturbed and just say, "Okay, let me go back to the previous part. I was saying this and that." This will help make it come back to you, and your audience will forgive you because it shows that you are human.

Then, anyone who is in the profession of presenting or acting has their own relaxation methods. An hour before they go on stage, they sit down and meditate or use some other techniques to calm down and focus. That's something you can do even at a conference. For example, while you are still sitting in the audience, you may just breathe deeply and slowly while shifting your focus on to different parts of your body to help you relax a little bit.



Finally, don't label all of your tension as negative, as you need some adrenaline pumping in your body to be able to tell yourself as you go up to the lectern, "This is going to be important. This is going to be interesting. Let's go."

Q Why is it important for young scientists to learn how to use PowerPoint well?

A Scientists often spend several months, sometimes even a year, writing a paper. And if you ask them how many people they believe will read their paper, sometimes they say 10, 20, or 100 people. But then, if you ask them how much time they are going to spend on a presentation they are due to give to a room of 50 to 100 people, they usually say 2 days. And isn't that a pity? These 50 to 100 people who will be attending your talk are all interested in your work and may give you important feedback, or even ask you to meet for lunch afterward to discuss a potential collaboration. Presentations are a wonderful and rare opportunity for you to have direct contact with colleagues, and you really want to make the most of it.

Q Given all the problems you've described about how PowerPoint is used, should researchers think about abandoning it?

A No. Some of my points above might sound negative, but I am all for PowerPoint; I think it is a brilliant tool. You can use PowerPoint very creatively to support your story. For example, it is very easy to make a little movie with your slides—you don't have to be a computer nerd to animate all this.



The problem lies not in PowerPoint but in how it is used. No one would think of blaming a bad novel on the type of word processor the author used; the same goes with presentations. What will determine whether the public holds your story as good or bad is, above all, the quality of the content and your capacity to deliver a compelling narrative using the chosen tools and medium. For presenters, this means learning how the audiovisual tools provided by PowerPoint work, and taking into account how they can work for them or against them. Then they also need to take into consideration the audience and how it reacts to their presentation, which comes back to eye contact.

Ultimately, as I found out during my Ph.D., although we believe that giving a presentation has become easier now that we have PowerPoint as a support, it has in fact become more difficult. This is because using audiovisuals like slides and animations have made scientific presentations much more of a stage performance, and improper use has led to the slides gaining too much importance. As one of my fellow researchers puts it, "PowerPoint slides now take all the attention onstage, with the presenter being little more than a stagehand." We need to empower the presenter and let him or her take the spotlight again, because that's what an engaging and effective presentation is all about.

For more information on our training on PowerPoint use:

<http://www.bhertz.nl/english/training/presentation>

<http://www.bhertz.nl/english/contact>

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