

# Effective Presentations—A Must

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Effective presentations are critical for success in whatever career path one takes. Nevertheless, very little attention is devoted to teaching our students how to give a good presentation. How many times are we surprised at how poor presentations are, even from well-known scientists? We should not be surprised, since we provide little, if any, guidance for students, and poor communication techniques are simply propagated through the system. What follows is not an exhaustive list of do's and don'ts, rather it is designed to bring attention to this issue, and, in a similar way to the influential text by George M. Whitesides on "Writing a Paper" (*Adv. Mater.* **2004**, *16*, 1375), initiate a discussion on the topic. If chemists can become better at communicating their ideas to fellow scientists who specialize in different areas, to funders, government policy makers, industrial partners, and the general public, the future of the chemical enterprise will be healthier and our students will be more successful in their professional lives.

While a publication can be read again and again, a presentation is over immediately. Therefore, the rules for writing a publication differ from those for preparing a presentation. The best presentation is—like the best measurement—the one that has the highest signal-to-noise ratio. In the case of presentations, the signal is the delivery

of a clear message. Noise, which can include too much information, poor slides, filler words such as "um" and "ah", must be minimized.

## Two Indispensable Considerations

Before you start preparing a presentation you should answer the following questions:

1. What is my message? To answer this question it must become clear to you why the audience should care about your work; how it affects them either professionally or personally; and what the big picture is.
2. Which story do I use to convey my message? It is essential to focus the attention of your audience. To achieve this, you first have to think about who your audience is—are they in the same field as you, is it a diverse group of scientists, or maybe even a general audience?

## The Slides

Many of us start with the creation of the slides to be used in the presentation. As with a manuscript, you should start with an outline, though this is where the similarities with writing a manuscript end. Specific rules and good habits include:

1. Do not reproduce images directly from manuscripts, as this conveys the message to the audience that little thought has gone into the presentation. You can stare at a figure in a manuscript for an hour as a reader, in a presentation you typically have less than a minute. As a result, the image has to be simple.

2. One message—one slide to maximize signal to noise. That means: go critically over every part of every image on a slide and ask whether this is absolutely necessary. If the answer is "maybe", then delete it. I am always shocked when a presenter puts up a slide that is extremely busy, then tells you to ignore most of the slide. If it is not relevant, then do not show it.
3. Make your slides visually appealing. The audience does not have much time to take in the information on the slides, and so they cannot be distracted by poor font selection, bad color choices, and so on.
4. Limit text. The text should only support or convey the one message per slide rule. To help ourselves during presentations, we often fall into the bad habit of putting too much text on slides and then simply reading the text to the audience. This only ends up being noise. This rule also applies to the slide title itself: it should not describe the slide. Imagine a slide detailing how a compound was shown to be a single stereoisomer by NMR spectroscopy. Having "NMR of compound X" as a slide title is useless. This conveys no valuable information. Instead use the title to reinforce the message of the slide, for example, "Single Stereoisomer is Observed".

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## Practicing

**P**resentations rely on both visual cues (slides) as well as oral reinforcement (speaking). Many of us are comfortable with creating slides, but few researchers enjoy speaking to an audience. Therefore: practice the full presentation, either in front of co-workers or colleagues. No amount of just looking at your slides will ever make up for actually standing up and verbalizing what you want to say. Time yourself, work on improving the flow of the presentation, and make sure the key messages of the talk are clear. How often do presentations either run over time, with the presenter skipping the last 5–10 slides or racing through them at such a rate that no one pays attention. This leaves the audience with a very poor impression of the whole presentation. Finishing early is actually a good thing. To more effectively demonstrate the importance of practice, consider the following. A normal presentation may cover many years of work in the laboratory. Certainly this is worth a few hours of practice.

## The Talk

**T**o make the actual presentation a success the following rules should be taken into account:

1. Engage with the audience. This may seem simple, but again speakers typically do not do this and, as a result, they lose their audience. As just one example of a common mistake, do not look at the screen, unless you need to illustrate something using the laser pointer. Instead focus on the audience and make eye contact with as many people as possible. In addition, use visual cues from the audience to quicken, or slow, your presentation. Try to interact with people in the audience and welcome comments during the presentation. Audiences are more engaged when a presentation is a two-way discussion rather than a strict monologue.
2. Project a sense of confidence and professionalism. It may seem minor, but projecting confidence to your audience through well-chosen words, steady delivery, and a professional appearance counts for a lot and is very easy to accomplish. As the saying goes, “first appearances count”, and this is equally true for presentations. But do not forget to be authentic.
3. Make effective use of voice and pointers. For many researchers the effective use of their voice is a challenge. While many people know to avoid filler words such as “um” and “ah”, it is less well known that silence

can be one of the most effective tools during a presentation. It helps frame points and brings the audience into your story. Next time you feel like saying “um” or “ah”, use silence instead and see how effective this is. Equally important is to use the cadence and volume of your voice to maximize the impact of your main points. Finally, overuse and erratic movements of a laser pointer contributes significantly to “noise”—laser pointers are for emphasis, nothing more.

## So what?

**I**s it important for the chemistry community to be better communicators? Absolutely! We all go to conferences where we present technical data with one of the purposes being to receive advice and suggestions concerning research directions. Do we ever ask for feedback on how the data were presented or if the presentation was effective? No! This is a major issue as all researchers, from students to faculty, must become more proactive in improving their communication skills by seeking out critical feedback and devoting significant time to preparation. Our passion and devotion to chemical research must be matched by our ability to communicate the results.