Invitation

研究成果を英語で伝えるスキルに磨きをかけたい皆さんへ：このシリーズでは，東京大学のウッドワード先生が，あなたの今の英語能力を使って成果をより効果的に上手に伝えるためのアイディア，作戦，ヒントを紹介します。また，日本語でのプレゼンにも役立つ多くのアイディアも見つかるでしょう。

By Invitation of the Editor-in-Chief

English Scientific Communication

Part 6—Using presentation software effectively-keeping things clear

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In this series of articles we are looking at ways to communicate science effectively in English. In the last article we started to talk about the key principles to bear in mind when designing slides for an oral presentation in your favourite presentation software. This month we continue to look at using software effectively and focus now on the content.

Your presentation software is quite sophisticated. When scientists gave presentations 20 years ago, they did so almost exclusively using sheets of transparent plastic (referred to as "acetates" or "transparencies") which they wrote on with special coloured pens and projected onto a screen using an overhead projector. In very special cases, scientists could have their data put onto slides and projected with a slide projector, but this was expensive and time-consuming. The arrival of laptop computers and data projectors changed everything and over a period of about 5–10 years there was a total switch to computer based presentations. Excited with their new toys, many scientists went over the top thanks to all the new capabilities. Things are much improved now, but the important lesson is to use your software with restraint and with careful thought. It is useful to discuss a few key dos and don'ts!

Dos and don'ts

It is useful to start with a list of simple things to take care over:

- Many colour combinations are almost unreadable when projected by an LCD or DLP projector. Use high contrast colour schemes and where possible, always check the slides on the data projector / screen you will be using, as results vary and differ hugely from what you see on your laptop / tablet screen.
- Limit the amount of information on each slide. Try to keep your font size above 24 point and use text in a considered way. If you put whole sentences / paragraphs of text on a slide, the audience will not listen to you properly while they are reading the text.
- Last time, we discussed the power of images. Use images in your slides in combination with what you are saying to aid understanding and recall. Never add images just because they look nice! Unnecessary images will only serve to distract your audience.
- Animations are like images, but you need to be even more careful about using them inappropriately. Having animations in your presentation should always be done to enhance or clarify explanations.
- When it comes to choosing fonts, the best rule is to stick to a single one, or two at most. Mixing fonts looks bad. Try to use standard fonts if possible. It is possible that if you submit your presentation by e-mail or on a memory stick, that the presentation computer may not contain your special font and that strange symbols may appear! Make sure to enter English text using half-width characters on your computer. If you use full width characters, the text will look strange.
- Never use sounds in your presentation unless you have a very good, specific reason for doing so. In general they are just distracting. If you do need to use audio for something (for example if you show a short movie with sound), then make sure you test the audio system carefully before you begin your presentation—check the audio cable and the output level.

Most presentation software these days has built-in themes that have colour schemes and font combinations that have been confirmed to work well. Make use of these predesigned themes if you want to save some time and play safe. Simple is usually best. As you present more and become more confident, you can start to tweak the designs or build your own.

Presenting data

As chemists, a large part of the content of our slides will be graphical representation of data in the form of graphs, spectra, reaction schemes and molecular structures. The key to presenting data well is to think about your audience and to devote sufficient attention, time and effort to preparing your data properly for presentation.

One of the most common mistakes made is in assuming that a graph or spectrum that looks good in a journal article or other written report is appropriate to use projected on a large screen. When writing articles, the focus is usually on being concise, which often means condensing as much information as possible into a single figure. This objective is completely opposite to the one we have when preparing data for presentation on screen. In this case, we wish to remove all unnecessary information and focus the audience's attention on just the information we are

speaking about. Therefore the key rule is to reformat data in a way that is appropriate for the screen. Use large, clearly legible text to label axes and for legends and axes titles. For different spectra, make sure the lines are thick enough to be clearly seen and use colours (bearing in mind the earlier warning about colour selection) carefully to distinguish different data sets, ensuring that your colour code is always available and very easy to read.

Always make sure that everything is clearly labelled in English. It is very common to see presentations where the speaker has used Japanese figures. This is usually due to simply copying and pasting figures from existing publications or presentations delivered in Japanese. It should be avoided, as it can easily confuse or distract the audience. It is also a little unprofessional in that it gives the message that you weren't prepared to go to the effort to correct the figure for this presentation. Many scientists are busy and so such shortcuts are common, but if you are striving to create a good impression, ensuring that your slides are free from Japanese annotations is an important step.

In some cases, when explaining something, you may need to make use of data that is not your own. In some cases, the source of this data will be existing journals or textbooks and may, for example, be graphs or spectra with very small axis labels or contain information in Japanese or another language. You can work around this problem by learning to use your presentation software well. There are two main techniques that are worth practicing:

1) Learn how to use the crop feature properly. In most cases, it is easy to crop spectra or graphs to remove all the axis labels. You can then manually re-add these in English using a large and easy to read font.
2) For most figures from journals, the background will be white, so it is possible to generate white rectangles or other shapes in your presentation software and use them to "erase" unwanted legends or other distracting information from figures by placing them over the figure. You can then add new large and clear annotations over the top. If you do find figures with a non-white background, you can usually still do the same thing by using your software's eyedropper tool to capture the background colour and make shapes in this colour to place over the text / objects you wish to remove.

More advanced techniques include using transparency to remove backgrounds and being able to mask existing figures so that you can add or remove different parts as you speak. However, the basic two techniques described above will serve you well in most cases.

Tables are another common way of presenting information. Once again, data tables from written publications tend to be very densely packed with information, most of which is not relevant to the point you are making. Many presenters take very large existing tables and paste them into their presentations and use either coloured highlights or a laser pointer to identify the parts they are referring to. This should be avoided. If you are comparing, for example, 3 different rows of a table containing a total of 15 rows and are only interested in the information in 2 of the total of 6 columns, then spend the time drawing a new table with 3 rows and 2 columns and including the relevant data. This will mean that you can use large and clear fonts, change colours for highlighting and even hide and reveal the contents of individual cells as necessary. This will make things much easier for the audience and as they have to work less hard, they are more likely to follow your explanation. This is a general rule that is particularly true when working in your non-native language—design every aspect of your presentation to make life easy for your audience. This will make sure they have plenty of mental capacity to follow your spoken explanations, even if your English contains mistakes or your pronunciation is sometimes unclear.

Working with equations

As chemists, it is common to include chemical and / or mathematical equations in presentations. Particularly in the case of the latter, we need to be very careful about how we do this. In an earlier article, we discussed the fixed, limited size of working memory and chunking. Once familiar with an equation, it only takes up a single working memory slot, but this is not the case for unfamiliar equations. Faced with an unfamiliar equation in a presentation, our brains set to work on try to decipher it and understand what the various parameters refer to, how they change and what the significance of those changes is. This requires a large amount of mental processing and will certainly distract us from what the presenter is saying. Therefore, before even using equations, think carefully about your reason for doing so. Make sure that having the equation is going to help with your explanation and not hinder it. Certainly having multiple equations on a single slide is not going to help anyone except those already very familiar with the equations. As always, you need to put yourself in the position of the audience and think about what is helpful and what is too much information. Think about whether the audience will be familiar with an equation or not before you use it. If it is likely to be new to them, you will have to devote some time to explaining the equation.

If you decide that including an equation is helpful or necessary, then you need to spend some time working on how you present it. You should always try to have a legend somewhere which explains the meaning of each of the terms, so the audience doesn't have to use up working memory slots remembering them. Colour is extremely useful in highlighting important variables or particular terms in the equation. You can use animation to add, remove, highlight or dim out terms in the equation to keep the audience focused on the key part (rather than waving a laser pointer at different terms in a long, distracting equation). Think about placing coloured boxes around particular terms and then adding annotations (synchronized with your speech) to highlight the meaning, significance or behaviour of those terms.

The more effort you spend on making the information in your presentation slides easy to swallow and digest, the larger the fraction of the audience that will understand it. In this respect, learning to be a good teacher has a great deal in common with learning to be a good presenter. Practice these skills and your presentations will go from strength to strength in any language.