

How Visual Storytelling with Slides Enhances Your Scientific Message

Author: Anita Ramanathan

Publication: ELRIG Career Zone webpage

Type: Contribution

When preparing for a scientific talk, the focus is typically on the research findings being shared. In many cases, published papers serve as a guide to build out the slide deck. The scientific content, however, only accounts for one element of an effective presentation. An often underutilised but powerful tool that can make technical presentations highly effective is visual storytelling.

Meaningful arrangement of elements on slides and simple design practices can significantly amplify the underlying message and make it memorable. When used appropriately, compelling visual elements have the potential to highlight the true value of your scientific data, driving your big idea home in a way that text-heavy bullet points simply can't.

Why Well-Designed Slides Matter in Scientific Presentations

It's challenging to listen to a speaker while absorbing all the text appearing on a slide at the same time. Audience members often slip into slide reading mode, completely tuning out what the speaker has to say. This undermines the very purpose of a scientific talk – a *spoken* medium.

A foundational practice in effective communication is to **match the message to the medium**. When the communication medium is a publication, reading is the expected audience response. In scientific talks, however, oral delivery, explanation, and personal insights are meant to add value. Here, the desired audience response is listening.

Presentations that are put together by copy-pasting text and reusing figures without any added design efforts often fail to keep the audience engaged, especially in virtual talks where distractions are merely a click away. In the absence of good slide design, promising ideas can go unnoticed and compelling data may get overlooked. Well-designed slides, on the other hand, add clarity to the scientific message, while keeping the audience leaning in.

Simple Visual Tweaks Make a Big Difference

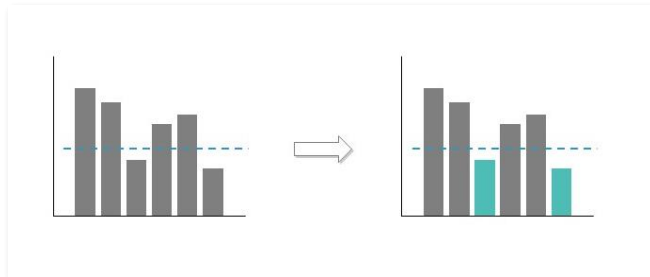
Most presentations are chock-full of 'texty' slides to help the speaker remember what to say. Good slide design is meant to serve the audience, not assist the speaker. Each visual element on a slide either amplifies the key message or obscures it. Consequently, the slide either captivates or confuses the audience.

In addition to obvious visual components, such as images, data, figures, and diagrams, even subtle design choices in typography, arrangement, colours, and animation, can directly influence how the information is perceived.

Below are three simple yet effective visual storytelling techniques that can maximise message clarity on slides with minimal design efforts:

1. Redirect their eyes to what is important

When data charts appear on slides, a significant amount of information needs to be processed within a very short period of time. To help your audience quickly grasp the main point of your slide, use colour contrasts to create emphasis. By directing all eyes towards what you wish to highlight, you've focused the audience's attention on your message. They now spend less time reading through or scanning over your slides and more time listening to you.



Use colour highlights to help direct attention to your main point.

	Group 1	Group 2	Group 3	Group 4
Type 1	33.5	52.3	27.8	22.6
Type 2	48.4	61.7	37.6	39.3

Make it easier for your audience to follow along by emphasising what's important on your slides.

Laser pointers serve a similar purpose, i.e., drawing attention to specific elements on slides. However, using colour as an in-built visual tool during slide design is a fail-safe way to bring attention to your point without having to worry about flickering pointers, low batteries, or remembering to pack an extra item.

2. Reveal one piece of information at a time

Due to the way we create figures for manuscripts – adding multiple pieces of data to one figure – too many science presentations tend to follow the same format. Given the limited space on each slide, presenting multiple graphs at once makes it overwhelming to process all the information. In these instances, as the speaker explains a particular dataset on the slide, people in the audience are no longer following along as they've shifted focus to a completely different graph appearing elsewhere on the same slide.

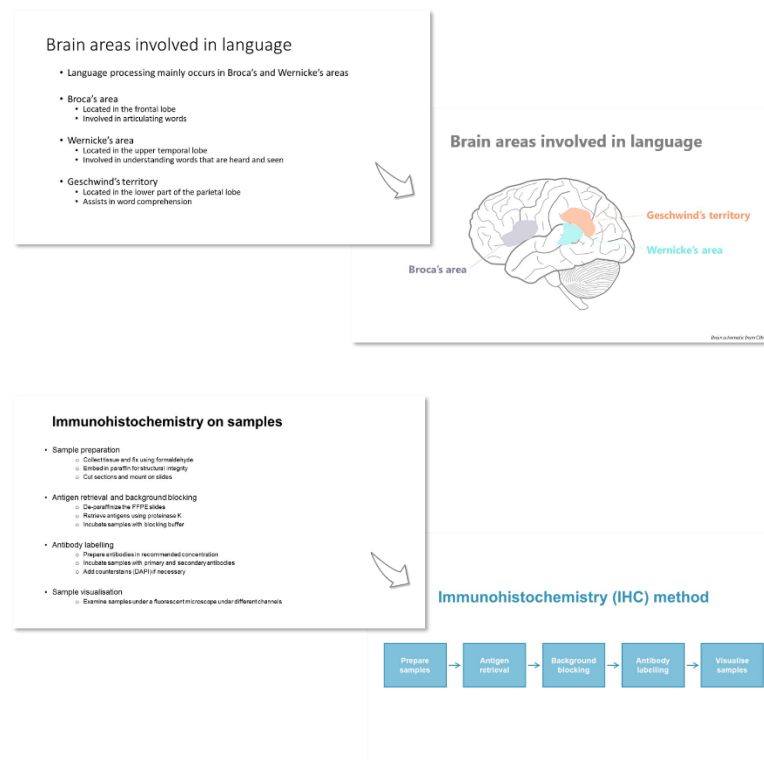
One way to make sure your audience is always in sync with your verbal delivery is to reveal only one piece of information at a time. Have only one chart per slide to make your point, and then flip to the next one to make your next point. Or use animations to have individual charts sequentially appear one after another on the same slide, each building up the narrative, and finally ending with the collective 'big picture' of multiple charts to make your summary point.

By presenting one idea at a time, you not only allow your audience to assimilate each piece of information but also keep them thoroughly engaged as you deliver your scientific story bit by bit like the scenes of a movie.

3. Replace descriptive text with visuals

The default slide structure in PowerPoint invites users to saturate rows of bullet points with text. Naturally, our first instinct is to add text to slides. Certain types of text-heavy slides, however, inherently lend themselves to be replaced by a diagram. Descriptive text explaining a method or categorising information can be transformed into eye-catching diagrams that are easier to process.

Concepts that are temporally related, for example, a step-by-step experimental protocol or the current status of a long-term project, can be displayed on a linearly progressing sequential diagram. Processes occurring continuously, such as circadian rhythms, fit better on a circular closed loop schematic.



Re-design spatially related descriptive text by displaying information on a map (top). Temporally related descriptive text, such as processes or methods, can be displayed on a linear or sequential diagram (bottom).

Similarly, spatially related information is easier to comprehend when represented on a map-like schematic. For instance, co-activated brain areas are highlighted on a diagram instead of listing them out as bullet points. Finally, categories or classifications can be represented as top-down layers or hierarchy trees.

Bringing Visual Storytelling to Scientific Communication

By designing slides that your audience can “get” in a few seconds, you’ve already succeeded as a presenter. Abstract ideas become more tangible, complex datasets more digestible, and your message more memorable. Scientific talks are not only meant to inform or educate, but to also invite your peers to engage in a conversation or initiate collaborations. These opportunities begin to widen when your scientific message is crystal clear to the attendees.

Poorly designed, text-filled slides never do justice to the time, effort, and perseverance that goes into completing a research project. Even simple visual tweaks go a long way in communicating the value

of your work. Designing a good slide, as it turns out, may just be as important as designing a good experiment.

—Anita Ramanathan

About the author:

Anita Ramanathan, founder of Word Cortex, is a neuroscientist, science writer, and communication strategist. She helps science and tech companies communicate complex ideas by uncovering stories buried under data and dry facts. When she's not writing or speaking, Anita is probably doing serious research on storytelling... by binge-watching Netflix.