



## The Power of Images

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Some say that a picture is worth a thousand words. But the computer disagrees. A single picture takes up between 50 thousand and 6 million bytes of memory, while a thousand words might consume 10 thousand bytes. Words therefore are more efficiently stored on the computer than images, but perhaps less efficient at communicating ideas. However, this all depends on which ideas you are trying to get across. And which pictures you are using.

Many teachers use images of various kinds in their presentations to students. And many students do the same as they prepare and present their multimedia reports. As I watch these presentations, which are becoming more and more popular in schools and colleges, I see my colleagues using images in some very different ways. This week's article attempts to describe the different ways of using images in a presentation, with an eye to the educational value of each method.

### A Progression of Images

I have seen educators use images in their PowerPoints, Keynotes, podcasts, and web pages to decorate, illustrate, illuminate, provoke, compare, contrast, oppose, predict, surprise, and build metaphors. Here's a lexicon of the ways they use images, arranged from the simplest to the most complex.

#### Decorate

To please the little second graders, the guest speaker put animated animal images on the slides -- birds and butterflies that cavorted at the corners of the display. These pictures had no relationship at all to the content of the presentation, which was about different types of rocks (he was a geologist from the local university.) He was using the images to *decorate* his slides. Decoration is the lowest, and perhaps least effective way of using images in presentations. It can also be dangerous. For the geologist, the first question asked by the students at the conclusion of his talk was, "Do those birds live inside the rocks?" Some of the children confused the decoration with the content.

A wise computer artist once advised me that *every pixel has a purpose*. She warned us against placing visual elements on the screen unless they had a clear communicative purpose. "No decorations," she insisted. "If you can't explain exactly how that dot or line or circle or little yellow bird helps your audience understand your message, then get rid of it." With today's clip art libraries and colorful templates and borders and backgrounds to choose from, it's very easy to decorate your presentation with images. But it may be more effective to forego the decorations and move up to some of the more powerful uses of images that follow.

#### Illustrate

This is probably the most popular use of images: to illustrate a point that you are making in your presentation. "Here is an example of a sedimentary rock," said the geologist as the slide showed a close-up photograph of some limestone layers in a riverbank. The picture illustrated his message, complementing his words with a visual example that helped clarify what he meant. "See those layers? Each of them was formed from shells and sand falling to the bottom of the ocean."

Illustrative images work best when they add to, and do not simply repeat, what you say or write with the slide. They work best when you use a single large and detailed image on a slide, with little or no text or other information alongside it. This helps the viewer concentrate on the image itself. Don't forget to allow enough time for your viewers to examine the picture, to take in its details and absorb its *gestalt*.

#### Illuminate

When you use an image to illuminate an idea that you are trying to get across, you light the way to a deeper understanding. "Let's zoom in on these layers in the limestone. See in this more detailed photo the skeletons of tiny sea creatures that gave up their shells to form this rock." Now the image is essential to the message; without the image, the message is impossible. The picture communicates the majority of the idea, while the presenter's voice carries a minority. Illuminating images go beyond the words, deeper, in more detail, providing additional examples, amplifying and clarifying what the words say.

If the projector bulb burned out as you were about to display an illuminating image, you'd be dead in the water; but with decorative or illustrative images, you could still sail on with voice alone. Illuminating images involve more risk, but engender more learning.

## Provoke

Images in this category can be more powerful than the others. They are designed specifically to cause students to think because of their logic or dissonance. And we mean provocative in the older sense of the word: not shocking or titillating as we are used to in the modern media, but thought-provoking and mystifying, as we see in great visual art. Here are some of the ways teachers use images to provoke ideas in students' minds:

### - Compare

"Take a look at this picture of a sedimentary rock. Now look at this picture. What differences do you see?" The teacher here is using two images to get their little brains working. He displays the images one after the other, or side-by-side, and asks an open-ended question designed to get them to observe, cogitate, and report. Carefully-crafted comparison of images can engage the student in the kinds of thinking he needs to understand the underlying concept. Comparisons can be blatantly obvious or soft and subtle; they can show relationship, order, complexity, development or cause-and-effect.

### - Contrast

Similar to comparison, contrasting images are often used by teachers to provoke thinking. Our geologist showed on the same screen a picture of a skyscraper in New York City and a quarry in Ohio, two very different images. "What do these two have in common?" he asked. (Both showed surfaces of limestone.) Visual contrast alone is interesting to the student's mind; contrasting images carefully chosen, along with exactly the right question can set that mind to wandering to new destinations.

### - Oppose

The psychology professor teaching about the concept of *empathy* opened the discussion with a series of photographs of people and animals fighting, making angry grimaces, and doing bad things to one another. "What's missing in these pictures?" was his question. He started from the opposite to reach the idea he was looking for. He helped define the concept by showing examples of what it was not. This kind of backward thinking can be useful in many educational settings.

### - Predict

The psychology presentation proceeds with a sequence of images: an elderly gentleman reading the newspaper as he stands waiting for the bus; his dropping the paper into the puddle at the curb; bystanders noticing his predicament. The teacher asks, "What do you think will happen next?" And more importantly, "Why?" He is using images to get his students to project, extrapolate, think ahead, and predict the next item in the sequence. These sequential images exercise yet a different form of cognition.

### - Surprise

A professor of nutrition begins his talk with a close-up photograph that looks like a forest of hollow silver tree-trunks. The audience was expecting a lecture on *Nutrition and Public Health in America*. We were puzzled as he asked, "What do you think this is?" None of us knew, and our guesses were all wrong. He moved to his next slide, a photo of a polar bear walking across an ice-floe. "What you saw in close-up was the hair of this bear.." He went on to explain how the super-insulating coat of the bear adapted him well to his surroundings, and how the same coat could become a burden under different circumstances -- such as in Florida in August. He used the image of the bear's hair to surprise us, to puzzle us, to get our minds working.

### - Metaphors

Back to the class on empathy. The teacher shows a pair of well-worn empty shoes on the screen. "What does this have to do with empathy?" He is using the picture to develop a metaphor, a seemingly un-connected concept that sheds light on the topic at hand, and helps students think about it. Images can provoke or develop metaphors in almost every academic field. Our nutritionist went on in his lecture to use the maladapted polar bear in Florida as a metaphor for a human digestive system adapted for an era of scarce food, a system that runs into difficulty when surrounded by plenty. Check out [Acclaim Photography](#) for some ideas in this regard. Then develop some image metaphors in your own subject area.