# creative techniques

## PowerPoint principles for education

by ellen finkelstein

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**m**ost advice about using PowerPoint is geared towards business users. Experts speak of creating presentations that entertain and motivate the audience and with the premise that listeners can only absorb a small amount of information in one sitting.

But if you're a teacher your goals are different. Yes, you want motivated students, but the goal is for students to learn. Ultimately they will be tested on the course's content. Your job is not to entertain, but to teach. You want to grab your students intellectually, not necessarily emotionally.
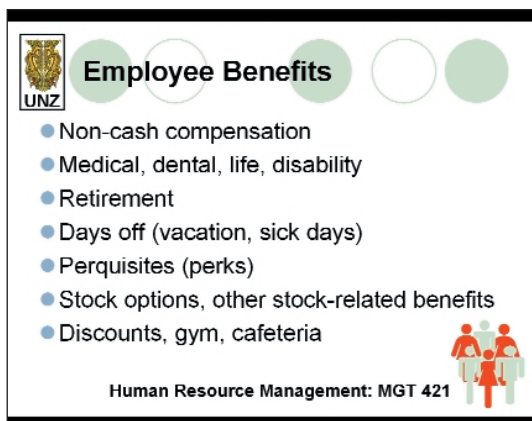
Should you use PowerPoint? If so, when and how? Teachers want to know whether PowerPoint slide shows will help students learn or not. As the education presentation is a different animal than a business presentation, teachers and professors need to reconsider how to use text and images, how to organize their slides and most importantly how to work with notes.

### The Mayer multimedia principles

Professor of Psychology at the University of California, Santa Barbara, Richard E. Mayer has studied how students learn from visuals and lectures. In his book, *Multimedia Learning*, Mayer summarizes his research on how people learn when they see and hear multimedia content, taking into account the various combinations of words and pictures.

Mayer's work outlines several multimedia principles, with the main premise being that people learn better from words and pictures than from words alone. He also notes not all educational material lends itself to images, but when appropriate, it can help students learn. In addition, people learn better when words are near their corresponding pictures and an educator should strive to ensure no extraneous information is on a presentation slide.

So what should the average educator take from all this? How do you know when an image is extraneous? Some educators suggest not using images at all, even logos and templates, unless it's necessary to explain the content, the material is very difficult or students need help understanding the topic (see EXAMPLES 1

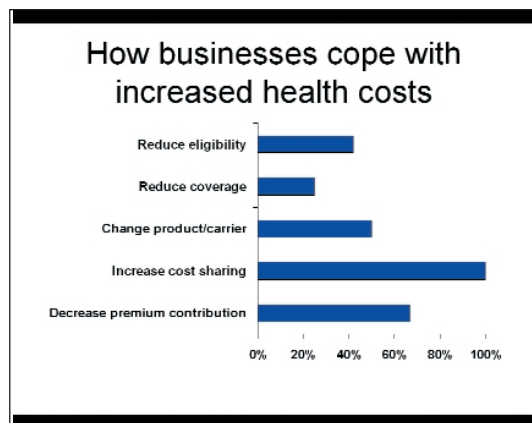and 2). Remember students are tested on facts, not on the images.

So before you place an image on a lecture slide, consider the following:

- Is it related to the text on the slide?
- Would leaving out the image delete crucial information?

While scholarly arguments on the use of images may not be final, one thing is certain — you don't use images in an educational setting the way you would in a business setting. When in doubt, leave it out is a good motto for educators.

### Keep slides organized

Mayer's redundancy principle says people understand more when they hear the text compared to when they both hear and see the text. This in itself is surprising, because it contradicts the most common way PowerPoint is used — text on the screen that the presenter reads. Exceptions to this principle are for explaining technical terms or the need to repeat content for novices to the topic at hand.

To put this principle into practice, include only your main topics on the slide, but not all your individual points. Then elaborate on your main points in your lecture. Keep in mind the PowerPoint file is not your presentation; what you say is your presentation.

The main advantage of this technique is students have to listen to you, in order to take notes. When you put all of your points on the slides, students naturally write down just the text on the slide, thinking that's what you'll test them on. If you elaborate verbally on any of the points, students assume this content isn't important, because you didn't put it on the slides.



EXAMPLE 1 Some researchers would say this slide is too cluttered with irrelevant graphics and logos.



EXAMPLE 2 Mayer's principles consider this a relevant image. It allows students to digest the topic quickly.

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## Best note-taking practices

Should you encourage students to take notes while you speak, should you give them your notes, or both? And how can you use the PowerPoint presentation to help students study?

Asking students to listen without taking notes works best when the lecture covers basic concepts, rather than a lot of facts. But if the lecture is mostly facts that students need to recall later, taking notes is the best strategy. There are three options within PowerPoint to consider.
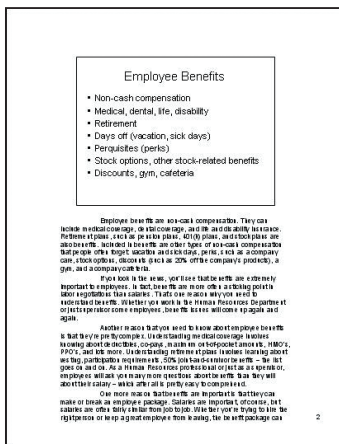


**EXAMPLE 3 To print a notes page, choose FILE → PRINT and from the "Print What" drop-down list in the Print dialog box, choose Notes Pages. This prints a page with accompanying notes to each slide.**
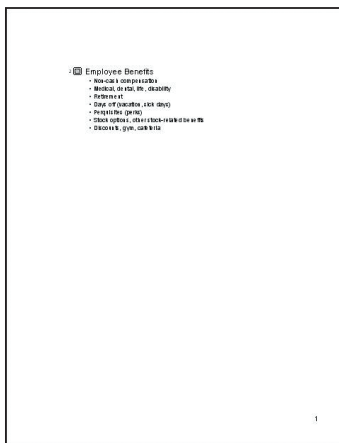


**EXAMPLE 4 To print an outline view of a slide, choose FILE → PRINT and from the "Print What" drop-down list in the Print dialog box, choose Outline View. That way the students get just the slide and lots of white space.**

Option 1 – Have students take notes and provide them with lecture notes afterwards. This is easy if the teacher uses the Notes pane in PowerPoint and then prints out Notes Pages (see **EXAMPLE 3**).

Option 2 — Print each slide is with lots of white space for the student's own writing. This is helpful, if students are omitting items that the teacher considers important. This gives students a skeletal outline of main points and space for additional notes. The more white space you give them, the more notes they take (see **EXAMPLE 4**).

Option 3 — Transfer the presentation into Microsoft Word. Choose FILE → send TO → MICROSOFT OFFICE WORD. In the Send to Microsoft Office Word dialog box, choose the Blank Lines Next to Slides option (see EXAMPLE 5). However, this option creates a lot less space.

The main advantage to this approach is within the Microsoft Word application, you can modify the layout easily. For example, you can insert a page break at the end of the last line of each slide to place each slide on a separate page. You can also add more lines.

## Good teaching is paramount

While all of these principles are helpful, you may even wish to do your own research. If you have two lectures that are similar, try presenting one with PowerPoint and one without. Give a quiz at the end of each class and compare the results. Try various types of PowerPoint presentations, for example, with and without images. Provide students with an outline (and space to take notes) first and see if it makes any difference. By experimenting with these variations you'll come up with a system that's more effective for you and your students.

Of course, there are plenty of other factors outside of multimedia presentations affect student learning. A teacher's skills are more important than the visual method used to present the course's curriculum. Nevertheless, we can all use a little help with our teaching, and a
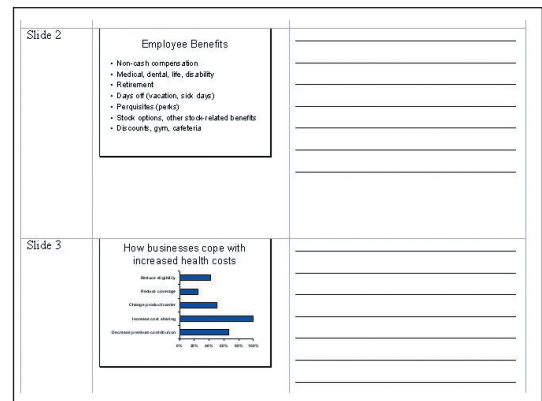


**EXAMPLE 5 The PowerPoint to Word option creates a Word document with blank lines for note-taking.**

PowerPoint slide show that enhances, rather than detracts from, the learning process is all to the good. ▣

**Software and system used:** Microsoft PowerPoint and Word 2003; Windows XP.