

Thomas E. Ludwig
Hope College

David B. Daniel
University of Maine at Farmington

Rick Froman
John Brown University

Virginia A. Mathie
James Madison University

Finally, a number of studies have suggested that student satisfaction and motivation is higher in courses that use multimedia materials (Astleitner & Wiesner, 2004; Yarbrough, 2001). In one particularly large study, Shuell and Farber (2001) examined the attitudes of over 700 college students toward the use of computer technology in twenty courses representing a wide range of academic disciplines. Students were generally very positive about the use of technology, although females rated the use of technology for learning and classroom instruction somewhat lower than did their male peers.

However, not everyone is excited about the new technology. On the basis of negative anecdotes described on student evaluations and in discussions at professional conferences, we can conclude that some students and some instructors have had bad experiences with multimedia in the classroom. It is important to keep in mind that a poorly developed and/or executed use of multimedia can do more harm than good (Daniel, in press).

In our opinion, these negative experiences often seem related to lack of experience with computer technology, instructors allowing the program to direct the flow of the course, or to overly optimistic expectations about the media (or to underpowered projectors that necessitate dimming the room lights). Our own classroom experiences, combined with the research evidence, lead us to summarize the potential pedagogical value and rationale for using classroom media in these three points:

- *To raise interest level* -- students appreciate (and often expect) a variety of media
- *To enhance understanding* -- rich media materials boost student comprehension of complex topics, especially dynamic processes that unfold over time
- *To increase memorability* -- rich media materials lead to better encoding and easier retrieval

Instructional Techniques for Appropriate Multimedia Use

Prepare a Class Plan. The class plan is perhaps the most important resource for the successful use of multimedia materials, because it guides the selection of media and provides the context for each media element. Conceived of in this way, multimedia programs and materials are tools to direct attention and emphasize key points that are best understood visually rather than all-purpose guides for every point of every lecture. Instructors who begin integrating multimedia into their classes often report that the media use forced them to improve the organization of their class sessions—which may be an added benefit to students.

Develop the Class Plan as a Slideware Presentation. Many instructors use PowerPoint, Keynote, Flash, or a series of linked web pages to organize and present their lecture outline and media. Because PowerPoint is available on nearly 100% of classroom computers, it has become the organizing tool for most instructors. Thus we will focus our comments on PowerPoint, even though we recognize that other tools have some specific advantages.

Build In Some Flexibility. One major objection to integrating slideware fully into classroom courses is that it would rob instructors of their flexibility – to diverge from the topic, or go into more depth on one topic, or make an adjustment in response to student questions. The perception of loss of flexibility is related to the amount of planning that it takes to develop a slideware presentation. Once developed, instructors feel that they have to stick to the order and get through all of the content. But there are ways to get around this situation. Remember that less is better when it comes to slideware. By creating guiding bullets as opposed to paragraphs of text, maximizing clarity, strategically including visuals for specific impact rather than just because they may be cute, and minimizing distraction, the slideware becomes more of a guide than a script, allowing instructors to take charge of the flow and use the program to direct it.

Where Possible, Include Animations and Video Clips. Although it requires more effort to locate and insert these types of materials (not to mention the effort involved in creating your own animations and video), research suggests that these materials have a particularly powerful impact on student learning (Mayer & Moreno, 2002). As you go over the material you want to present in class, look for places where an animation or video clip would be particularly helpful in illustrating a dynamic process that changes over time or has multiple stages. Then look for suitable ready-made animations or video segments that you could plug into the presentation. If you can't locate an acceptable animation, create it yourself, using the simple animation tools built into PowerPoint or Keynote. Even better, enlist the aid of a student or campus technology consultant to help you create it in Flash or some other powerful animation software.

Use Multimedia in Creative Ways. Although multimedia materials may have some value when merely added to a PowerPoint lecture outline, many instructors are exploring ways to incorporate these materials in collaborative learning activities involving case-based scenarios or problem-based exercises (Ludwig & Perdue, in press; Rogers, 2002; Savery & Duffy, 1996).

Fight Against the “Mind-Numbing” Properties of Slideware. Strong criticisms have been leveled against slideware in general and PowerPoint in particular. For example, Tufte (2003) argues that PowerPoint induces a “cognitive style” that encourages passivity and makes a complex issue seem more simple and clear-cut than it is. Here is a summary of Tufte’s criticisms of PowerPoint presentations:

- PowerPoint encourages simplistic thinking, with complex ideas being squashed into bulleted lists, and stories with beginning, middle, and end being turned into a collection of disparate, loosely disguised points. This may present a kind of image of objectivity and neutrality that people associate with science, technology, and “bullet points”.
- PowerPoint presentations seem designed to guide and reassure a presenter, rather than to enlighten the audience;
- PowerPoint encourages the use of unhelpfully simplistic tables and charts, tied to the low resolution of computer displays and the need for text to be readable by a large audience.
- PowerPoint lends itself to poor typography and chart layout, especially by presenters who use poorly-designed templates and PowerPoint’s default settings;
- PowerPoint’s outline format leads presenters to arrange material in an unnecessarily deep hierarchy, itself subverted by the need to restart the hierarchy on each slide;
- PowerPoint’s “click-for-next-slide” mentality enforces a linear progression through the presenters hierarchy of ideas (whereas with handouts, readers could browse and explore items at their leisure);

Some Specific Tips for PowerPoint Presentations

Designing Presentations

- It's not about you – Avoid using the presentation as YOUR lecture notes. A presentation is for the audience and their learning is the primary objective. Write your lecture before opening the PowerPoint program and use slides for information that is best presented visually.
- Minimize text – Less is better. Narration is better than written words for learning and retention in a classroom context. Clarity, not comprehensiveness, is your primary objective. In most cases, this means using short phrases rather than full sentences in your bullet points.
- Minimize distractions – Plain is better than flashy.
 - Select non-distracting and simple backgrounds
 - Select simple, easy-to-read fonts (small fonts annoy audiences)
 - Select simple and smooth transitions
 - Don't include irrelevant illustrations, animations, or sounds
- Be strategic – A good picture is worth a thousand words and a bad one needs explanation. Choose pictures, graphs and videos that clearly demonstrate the point you want to make.
- Make it yours – Customize publisher content. The slides that come with the book are outlines of the text. Delete slides to make room for yourself and add your own content to highlight your own objectives and style.
- Save room for dessert – Leave room for flexibility, questions, and the occasional tangent.

Presenting the Material in Class

- Cover your backside – Don't turn your back on your audience and/or read directly from the slide. Audiences report being annoyed by presenters who simply read their slides. Instead, print out a copy of your bulleted lists and narrate the main points while facing the audience (or orient the classroom computer so that you can view the monitor screen while facing the audience).
- Be relevant – Students will write down everything on a slide. To avoid having them writing down point #3 while ignoring your current lecture on point #1, reveal info on the slide as you speak of it.
- Fade to black (or white) – There are times when you will want student attention away from the screen and on you or discussion. This can be accomplished by placing a blank slide at relevant points or, by simply hitting your B key (B blackens the screen, B again brings the slideshow back on-screen).
- Experiment – Instructor style and learning objectives interact with presentation mode. Try various strategies, evaluate, and select those that work best for you.