

## **Avoiding the PowerPoint Penalty: Guidelines for Meaningful Use in Pre-Service Education**

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**Abstract:** Presentation software can have an important role in the classroom, especially when used to facilitate learning, rather than re-iterate talking points. Authors outline four guidelines for using presentation software in pre-service education programs and in the classroom. These guidelines encourage mindful use of the tool in taking advantage of its multimedia capabilities to reach the “information-age mindset” of today’s learners. Recommendations are: utilize multiple media to personalize meaning, improve visual literacy and encourage reflection; promote creative development of presentations as learning tools for students, facilitate retention through active note-taking; and maintain instructional integrity.

A classroom presentation can follow all the best design rules and still not lead to meaningful learning. When used as a replacement for traditional lecture methods, PowerPoint offers no significant difference in educational outcomes (Szobo & Hastings, 2000). Worse, placing students in a darkened classroom and simplifying lectures to mere talking points may bore students and make an un-engaging lecture even more passive. Frand (2000) suggests that the “information-age mindset” of today’s learners not only demand more engaging and interactive presentations, they are wired to learn best from methods that take advantage of their multi-tasking minds. Students want to “do”, not just “know”. They understand that knowledge is everywhere and always accessible and expect teachers to play a larger role than simply present information. In pre-service teacher education, this issue is critical: each instructor of pre-service teachers models their teaching behavior for future teachers to replicate, and students in pre-service education programs will soon reach students with increasing skills in and expectations for technology.

Presentation software like Microsoft PowerPoint and the recently introduced Apple Keynote, can have an important role in the classroom, especially when used to facilitate learning, rather than re-iterate talking points. The use of the software in pre-teacher education can occur on two levels: as a *teaching tool*, in which a college professor or a K-12 teachers uses a presentation program as part of engaging instruction, and as a *learning tool*, where students learn through developing their own presentations on a given topic.

Whether the software is used by college professors in a pre-service education classroom, or by in-service teachers with their students, presentation software should be integrated in meaningful ways. We offer 4 guidelines for effective presentation software use: utilize multiple media to personalize meaning, improve visual literacy and encourage reflection; promote creative development of presentations as learning tools for students, facilitate retention through active note-taking; and maintain instructional integrity.

### **Utilize Multiple Media**

The greatest advantage computers bring to education is the easy inclusion of multimedia. Audio, animation, and graphics enable learners with different intelligences or learning preferences to absorb information. Presenting information in different types of ways can increase short term retention and memory (Rakes, 1999). Visual images can be a more efficient and effective way to convey information. A single image can convey a large amount of information, emotion, and personal connection with an impact difficult to achieve with only text.

Today’s learner may be more comfortable beginning with the visual information, then supplementing learning with language-based information (Prensky, 2001). Schools should focus more on the visual skills considered fundamental

to intelligence and performance (Roblyer, 1998). This visual literacy can include the ability to interpret and understand images, communicate through principles of sound visual design, produce visual messages, and use visual thinking to conceptualize problem solutions (Christopherson, 1997). Even a comical cartoon can help clarify a problem solving strategy for a new teacher. The inclusion of thoughtfully selected media which adds to knowledge of the content, not used as window dressing, can encourage students to both interpret information visually, and use visual images to convey their own knowledge. Visual images provide a context in time and space which can be used to prepare students for their student teaching experiences by offering case-study video of typical challenges, or photos of diverse or challenging teaching environments.

### **Promote Creative Development of Presentations by Learners**

When learners control the development of the presentation, they use the software as Jonessen (2000) suggests -- as a "mindtool" that engages and enhances multiple forms of thinking. Mindtools promote critical thinking by making the learner an intellectual partner in designing their own learning. Mindful learning is active, constructive, intentional and authentic (Jonessen, 2000).

Students, including pre-service teachers, develop their own presentations and using the tool as a hypermedia tool by adding links to their multi-media based presentations. In preparing their own presentations, they can develop their skills in project management, research and organization. Presenting their work to class also gives them the ability to build their abilities in presentation and reflection. (Jonessen, 2000)

Most importantly, pre-service teachers can build their skills in utilizing presentation software to enhance the learning as others, seeing a learner-based development environment modeled for their own classroom. Imagine a pre-service teacher who has developed a presentation on cooperative learning in accordance to guidelines issued by the professor. After working collaboratively on the presentation, establishing priorities for what has been taught and managing the instructional information, that student can reflect on what was learned through the process of developing the software. When that student enters the classroom as a science teacher, he is prepared to ask his students to develop presentations on gravitational theory. Because the teacher has experienced it first hand and knows how to structure the activity, he knows that students engaged in organizing their own learning develop a deeper relationship with the content.

### **Facilitate Active and Structured Note-taking**

PowerPoint slide shows are often filled with an abundance of information. Are the students expected to copy this all down? Increase retention and extend the reach of the class by printing handouts and enabling students to take notes alongside of the slides. This is especially effective when the slides are not speaking prompts or lecture notes. Instead, design slides as structured note-taking devices which prompt the learner to reflect and interact with the lecture or discussion.

A PowerPoint presentation is meant to supplement and enhance instruction, not supplant it. For example, introduce a theory by listing its name and author with a few key words.. One professor takes great care to find a picture to be used as a memory hook to a vignette which illustrates a concept. For example, when teaching assimilation he uses a slide which has the word assimilation and a picture of a little girl on the beach. The girl is saying, " Bathtub" because she assumes that all bodies of water are a bath. This visual prompt gives learners a visual concept, and space for them to construct their own newly-formed definitions of the concept, augmenting instruction through their own interpretation.

### **Prevent the Software from Driving Instructional Strategies**

The easiest use of a presentation software is to prepare bulleted text, perhaps its ease of use leads to its overuse. PowerPoint offers a page template that makes it easy to outline, structure and categorize, yet effective instructors should not be tempted to let the ease of technology steer the pedagogy of instruction. For example, imagine teaching

of animal classification: one teacher might simply offer a list of the classifications, and ask students to note the order. Another teacher might take a more constructivist approach and offer lists and photos of several animals, encouraging students to develop their own classification, and compare with the existing taxonomies. The slide becomes interactive as the discussion drives the placement of the animals into categories. Text in presentation programs does not have to be bulleted. Presentation tools, like all technology tools in the classroom, must be controlled by learning needs: make an effort to avoid having the tool drive your teaching methodology.

Seek innovative ways to use the software- as you would a chalkboard and colored chalk or a piece of chart paper. Import charts and webs. One professor uses an incomplete bulleted list as a “teaser” to engage critical thinking. When teaching teachers to use PowerPoint, encourage them to start with a blank slide so they can be in control of the tool.

Certainly, on-screen text has its place in a classroom, but in slide development, less is definitely more. When instructors summarize their speaking points for students, they penalize them in two ways: students are discouraged from reflecting on presented information to form their own summaries, and learners are distracted by hearing one string of text while reading another

Presentation software is one of many computer-based tools for the classroom, and should follow the rule of all strong technology introduction: it should enhance learning. It can be especially effective when it takes advantage of multi-media, is used as a “mindtool” to encourage constructivist learning and encourages active note-taking. As with any technology tool, the instructor must drive the technology. The ease built-in to presentation tools can easily de-rail learning, causing instruction to become more like a board-room presentation than an active process between learner and instructor.

In addition to the pedagogical recommendations outlined above, it is essential to use sound design principles in developing presentations. Williams offers basic design guidelines: proximity (placement of objects on screen in relation to each other); alignment of text and images; repetition of concepts and visual images; and contrast, particularly of text to the background screen.) Several websites and articles on PowerPoint design exist that address these concepts and are easily accessible through a search engine.

When discussing the use of a presentation tool in a classroom, all too often the design guidelines are highlighted rather than the principles of *instructional* design. Yet, design is one small component: The most important aspect of the software is how it used in instruction. Sometimes things which seem most obvious need to be stated. As with all good teaching, the development of presentations should be a creative endeavor which reflects a clear purpose, shows respect for and engages the learner, enhances understanding and reflection. When the presentation software supplements instruction and empowers the learner, the pupil leaves the classroom carrying more than printed PowerPoint slides.

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