

Active Learning with PowerPoint Presentations

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Abstract

PowerPoint software usage is ubiquitous in contemporary classrooms, but unfortunately, the manner in which it is used frequently renders it a passive learning experience for students. However, there are ways to use PowerPoint and similar software to foster and structure active learning experiences.

Introduction

How does a teacher reconcile active learning and PowerPoint structured instruction when presentation software is basically a digitalized version of a “chalk-talk” in which the presenter lectures with accompanying information displayed on a screen, a classic passive learning setting? Although most lectures are enhanced by such accompanying visual and sometimes multimedia presentations, it is still essentially a passive setting for learning.

In training and education settings, in which the participants are expected to master the content and skills in a presentation for their own learning and independent use, it is important that the participants thoroughly grasp and understand the content and skills being presented to them. Assuming the participants are going to need to use the knowledge and skills from the presentation and integrate them into their own thinking and work, they need to learn as completely as possible. Even if the presenter fills a *PowerPoint* presentation with clever animation, video segments, sound effects, and other devices thought to increase audience attention, the participants are still in a relatively passive learning role. The presenter seeking to involve participants in active learning must go beyond mere bells and whistles.

Constructivist learning principles solidify this argument. Well-known and respected learning theorists such as Piaget (1964), Vygotsky (1978), Bruner (1964), and Papert (1993) have promoted active, constructivist learning, as have many others more recently. The gist of these principles is that learning proceeds most thoroughly, deeply, and memorably when learners are actively involved in their own learning, constructing their own meaning as they go. Stated another way, although passive learning environments may have an effectiveness for selected learners, trainers and educators will reach more of their participants, and will cultivate better quality and quantity of learning in all learners if the learning activities involve active participation, in which student participants are doing the work of constructing their own ideas and patterns of understanding.

Incorporating Active Learning Strategies

So again, how may presenters incorporate active learning principles into a historically passive medium of instruction? Effective teachers have identified some ways in which these two may actually be complementary, rather than mutually exclusive. The enlightened presenter will need to re-think the presentation to find appropriate and meaningful ways for the students to participate in order to be active in their learning.

Some possibilities include:

1. cueing and guiding group interaction during the presentation,
2. capturing and recording participants' ideas during the presentation
3. cueing student participants to present individual or group learning outcomes to classmates and other authentic audiences.

Each of these general teaching strategies with presentation software will be elaborated further.

1. Cueing and guiding group interaction during the presentation:

If the presenter is interested in having student participants discuss ideas or interact with one another related to the lesson objectives, the presenter may cue this in

a slide that states the task and provides a learning activity for the group. For example, as part of a lesson in which students are presented cognitive strategies for comprehending challenging texts, the teacher could display the following screen:

Small group task

Find three classmates sitting near you and take turns identifying the advantages and disadvantages of the cognitive strategies we just discussed:

- Strategy A
- Strategy B
- Strategy C
- Strategy D

The presenter may also manage group dynamics through a similar process, e.g., identifying group membership by listing names on the screen, identifying roles within groups on the screen, etc. This guides the active learning of the participants and minimizes confusion and wasted time in following through on these learning tasks. Learners may refer repeatedly to the task instructions on the screen, and work with fellow learners in the pursuit of socially constructed meanings. In this example, the *PowerPoint* presentation is being used to describe the learning task, and is also helping with the management of groups in their active learning experiences.

In another variation on this suggestion, if the presenter is interested in having the participants analyze or solve problems, the presenter may present the target problem or data to the audience by means of the presentation screen, and challenge individual thinking or small group discussion to propose an accurate analysis or workable solution. For example, in a lesson intended to model and challenge teacher candidates in data-driven instructional planning, the following screen could be presented:

Problem for analysis

Given that there are three quarters left in the coming academic year, and given the data on the following screen about recent student performance, recommend the most effective planning strategy for the remainder of this year. You may discuss your ideas with other classmates. Be prepared to contribute your ideas to the whole group.

Notice in the example above, the presenter is offering an additional data display screen from which participants are challenged to discuss, analyze, and report their findings to the group at an appropriate time.

2. Capturing and recording participants' ideas during the presentation:

If the presenter is interested in receiving and capturing ideas that are generated by the participants, the presenter may prepare a blank slide in the format appropriate for the recording of ideas, and then use *PowerPoint* in much the same manner as a conventional whiteboard and markers would have been used to collect and represent ideas contributed from a group. The difference is that the ideas are being recorded within the presentation, and can be later saved, edited, and distributed as a record of the session discussion, captured within *PowerPoint*. The presenter may be the recorder, or may delegate this role to a participant in the class.

3. Cueing student participants to present individual or group learning outcomes to the class and other authentic audiences:

If the teacher is interested in providing a platform for sharing of individual or group outcomes with the class, presentation software may offer a medium for the efficient sharing of these works with a larger audience than the teacher alone. Student participants who know at the outset that their work will be shared with an authentic audience often approach the task with more purpose and engagement than under

passive learning conditions. For a part of the class meeting time, the student participants are the presenters. The larger group benefits from the access to fellow students' learning outcomes, and the experience often contributes to the thinking of the entire group. The presenting student participants are challenged to transform their thinking into useful ideas for their audience, promoting careful construction of organized and hierarchical ideas for sharing, and this transformative thinking inevitably required in a quality synthesis of important ideas drives learning to deeper levels, especially among the presenting group.

In order for this activity to not only be engaging for the students, but to also yield student presentations that will have more consistent quality and learning value for the audience of classmates, the teacher will usually need to state explicit expectations. This may be conveyed by suggesting procedural steps and by providing a rubric, part of which is illustrated below in a sample screen:

- Recommended Procedures for
Preparation of Group Presentation

 - Confirm topic/theme of presentation
 - Share contact info, plan working sessions
 - Agree on member responsibilities
 - Agree on workflow and target deadlines
 - Draft *PowerPoint* presentation
 - Agree on presentation responsibilities
 - Critique, revise, edit to final presentation
 - Present to whole class
 - Reflect on experience

Even if a presenter only uses one of these three techniques within a presentation, an audience or a class could be more engaged and able to incorporate ideas from the class session into their own thinking, in part because they worked with the ideas in a more active, constructivist manner. A presentation could alternate among levels of group participation, involving a block of time that uses mostly active participation, then a block with passive participation, then another block of time with more active participation again, according to the teacher's design of the lesson. The

PowerPoint presentation may guide these learning activities and provide an effective means of sharing discussion notes and projects along the way.

Of course, *PowerPoint* is not the only software available for digital media presentations, simply the most popular. In addition to projectors and display screens, many instructional settings are being equipped with interactive whiteboard technology such as *Smart Boards*, with their accompanying *NoteBook* software. Although there are important differences in these technologies, and although the *Smart Boards* are more optimized for interactive presentations, some of the recommendations above could apply to the *Smart Board* enhanced classroom. Student participants may even more readily contribute their ideas and representations to the group in these settings, again moving the style of teacher presentations of content from a passive learning to an active learning condition, from teacher-centered to a more learner-centered and learner-construction-of-meaning experience.

The International Society for Technology in Education has recently developed National Educational Technology Standards for Students (NETS-S) and for Teachers (NETS-T). (ISTE, 2007, 2008) The recommendations for active, constructivist learning with presentation technology in this article align strongly with several ISTE standards, promoting student outcomes such as creativity and innovation (NETS-S Standard 1), communication and collaboration (Standard 2), and critical thinking, problem-solving, and decision making (Standard 4). The ISTE standards also support teacher outcomes related to effective utilization of presentation technology, such as facilitate and inspire student learning and creativity (NETS-T Standard 1), design and develop digital-age learning experiences and assessments (Standard 2), and model digital-age work and learning (Standard 3).

Indeed, the learning standards in all disciplines call for learning that is characterized by deep and thorough acquisition of knowledge and skills, a goal for which active learning is especially well suited as a guiding principle. To the extent that a

teacher may incorporate active learning conditions into otherwise passive screen-based presentations, the teacher should find better learning outcomes for all students involved.

Conclusion

These techniques are not appropriate for all types of presentations, but in sessions aimed at training or education of the audience members so that they will gain the ability to perform some task in an independent manner, such presentations will need to involve the learners if at all possible, and this is almost always possible. It may take some analysis and planning on the part of the presenter to modify an otherwise passive presentation of content and skills into an active learning session, but the result can be significantly more meaningful and productive learning experience for the student participants, and after all, that is why a presenter makes a presentation in the first place!

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