

Making PowerPoint Interactive with Hyperlinks

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ABSTRACT: The traditional “slide show” method of a PowerPoint presentation does not easily lend itself to active teaching techniques. Incorporating hyperlinks into a presentation turns a linear presentation into a web-like presentation that allows for students to become active participants in the learning process by making choices about the direction and depth of the lecture.

Introduction

Since its introduction fifteen years ago, PowerPoint has become the medium of choice for presentations in the corporate and government sectors. While its adoption in academia has been slower, its use has been growing, and nearly all textbooks, at least at the introductory level, have PowerPoint presentations available for classroom use. Without question, PowerPoint has some very attractive features. It looks professional and allows the user to easily incorporate multimedia into a presentation. It is also very easy to use and permits even a novice user to create colorful and easy-to-read slides. But the real question is whether the use of PowerPoint enables students to more easily learn and retain information. In other words, does PowerPoint increase teaching effectiveness?

Barbara Gross Davis answers the question of what defines effective teaching by stating, “For hundreds of years, college teaching was typified by a professor reading a lecture to an audience of note-taking students. The professor’s duties were to compose and present authoritative lectures, to test students on their knowledge, and to assign grades.” (Davis, 1993, pg. xix) A standard PowerPoint presentation simply adds a technological element to this traditional teaching style where the role of the professor is now typified by running a PowerPoint slide show and reading the bullet points as they appear on the screen. The professor’s primary duty simply changes to composing and presenting authoritative PowerPoint presentations.

Most education experts, however, reject this method of instruction. Davis, for example, asserts that “over the last thirty years, however, this model has given way to new understanding of what constitutes effective college-level instruction. Research on students’ academic success and intellectual development has demonstrated the effectiveness of modes of instruction that emphasize active learning and collaborative activities and engage students in intellectual discovery.” (Davis, 1993, pg. xix) Unfortunately, PowerPoint presentations are often little more than glorified overheads that encourage a lecture approach to teaching with little student interaction. In the words of Wake Forest professor David Brown, these presentations are simply an excuse for students to “turn down the lights, look at the screen, and ignore me.”

The Traditional PowerPoint “Slide Show”

The traditional PowerPoint presentation is known as a “slide show.” This type of presentation consists of a series of screens presented one after another just as slides in a old-fashioned slide projector. This method of presentation is not without its advantages. Most importantly the creation of a slide show requires that the professor organize the topics that will be discussed. In addition, the program easily creates colorful screens that are very easy-to-read as long as the presenter uses a bit of common with regard to font size and contrasting colors. To this end, PowerPoint presentations have a distinct advantage over chalk and blackboards or handmade overheads for those persons for whom handwriting is not an area of comparative advantage. In addition, computer projectors are effective in providing clear information in large-lecture settings. Blackboards are not effective in classrooms of, say, over 100 students because of the difficulty of writing in a way so that all students can easily read the material.

PowerPoint is also very effective at presenting audio-visual material or charts and graphs. Sound, video, or picture files can easily be included at any point in the presentation. (As a side note, because of the large size of video files, it is often impractical to incorporate large lengthy video clips in a PowerPoint presentation.) High quality graphs and charts can also be quickly added to PowerPoint presentations whereas creating graphs or charts by hand on a blackboard is tedious and time-consuming. Student comprehension can be increased through visual learning, so PowerPoint can be effectively used, for example, to create graphical comparisons of ideas presented in class in lieu of giving printed handouts. A final advantage of PowerPoint is that the presentation files can be sent to colleagues over the Internet or the presentation can be made available for public viewing on the web.

According to James Nolan and Pam Francis, three of the fundamental beliefs of educators are that

learning is the process of accumulating bit of information and isolated skills, the teacher’s primary responsibility is to transfer his or her knowledge directly to the students, and that the process of learning and teaching focuses on the interactions between the teacher and individual students... Given these beliefs, the most important teaching tasks are the following:

- Organizing and structuring the learning material in the most appropriate

- sequence.
- Explaining concepts clearly and unambiguously.
 - Using examples and illustrations that can be understood by students.
 - Modeling appropriate application of desired skills. (Nolan and Francis, pp. 45-46)

The slide show method of presentation, in fact, seems almost perfectly suited to accommodate the traditional view of learning and teaching. Martin Nystrand refers to this instruction style as “monologic” in that “the participation structure in these classrooms is one-sided and completely dominated by the teacher... Student participation is mainly procedural.” (Nystrand, 1992, p. 4)

For unskilled or novice teachers, the slide show method does provide enough advantages to often warrant its use. Certainly a well-organized presentation with little or no student participation is preferable to an unorganized, ambiguous, and poorly illustrated presentation with a similar amount of class participation. For this reason, students and other occasional “teachers” may benefit from the process of creating “slide show”-style PowerPoint presentations.

It is obvious, however, that the traditional view of teaching discourages active learning, and the slide show presentation simply magnifies the passive nature of the instruction. The slide show presentation is, by definition, linear in format. Since the order of the presentation is predetermined, the teacher cannot easily change around the material in order to accommodate student questions or particular student interests. Unless the teacher has an uncanny ability to anticipate student questions, it is not possible for the teacher to include the correct slide at the appropriate point in the presentation when creating the presentation. In addition, it is difficult to skip material or access a previously viewed screen without flipping through page after page of the presentation. Students are discouraged from asking questions when the response to every question is simply, “We’ll get to that issue in 15 slides.” By presenting material in a set order, the professor may miss opportunities for students to make important connections between more distantly related topics.

Furthermore, the use of PowerPoint tends to create an impersonal classroom environment as the professor is essentially replaced by a computer. Indeed, PowerPoint slide shows can be created using a pre-recorded audio track would require absolutely no input from the instructor aside from

turned on the computer and running the program. Research shows that students tend to feel less responsibility towards their fellow students and the professor in impersonal classrooms (Gleason, 1986). In addition, students who feel anonymous in class are less motivated to learn and less likely to do the required work. (Brock, 1976).

Nystrand (1992) contends student learning is significantly enhanced when classroom lectures are “dialogic,” that is when lectures are not imply recitations but include significant student contributions to the direction and depth of the conversation. “Unlike recitation, substantive conversation is not (and cannot be) completely preplanned by the teacher beforehand, since the actual conduct and direction of the discussion depend on what both the students and teachers contribute and especially on their interaction.” (Nystrand, 1992, p. 4)

An Alternative: The Hyperlinked PowerPoint Presentation

It is possible, however, to design PowerPoint presentations that actually encourage rather than discourage active learning by students. An alternative to the slide show presentation is the hyperlink method of presentation. In this method, rather than having a set sequence of 30 or 40 slides, a series of short 2 to 5 page presentations is organized around a central topic.

PowerPoint is designed so that any object in a slide show, from a symbol to a text phrase to a picture, can be given an “Action Setting.” (In practice, assigning an action setting to a object in the presentation is done by highlighting the object, then clicking on “Slide Show” on the upper task bar, and then by clicking on “Action Settings” in the drop-down menu.) This Action Setting can be programmed so that a mouse click on the appropriate object will either run a program, activate a sound or video file, or most importantly, the mouse click can be used to link to another page in the PowerPoint presentation or to an external web page. By hyperlinking pages in the presentation to one another, the presentation becomes an interactive web rather than a linear sequence of slides.

One possible setup that takes advantage of this system of hyperlinks involves creating a “home page” slide that focuses on a central topic with active links for each individual related topics. Clicking on each active link takes the PowerPoint presentation to an appropriate (but short) set of pages related

to the specific topic. The presentation on each individual topic can be designed so that the presentation returns to the home page at the conclusion of the individual topic. Alternatively, the presentation can be set up so that each individual page contains an active link back to the home page. (In practice this is done by clicking on “View” on the upper task bar, and then clicking on “Master” and “Slide Master” in the drop-down menus. Inserting an object with an active link back to the home page on this master slide will cause that same object to appear on each page of the presentation.) The master slide can also be used to insert a object that links to a page to which the presenter will want to refer at numerous times during a lecture. For example, when teaching the laws of supply and demand, an active link to a basic supply and demand graph would be useful to have on every page because at any time in the lecture there may be a need to examine what happens to supply or demand with a change in some variable. Similarly, an always available link to a data set or an equation or system of equations may be a useful addition to a presentation depending on the topic being taught.

This hyperlink approach to PowerPoint builds in flexibility to the lecture and allows the students and the professor together to pick and choose which topics to cover on a particular day. For example, suppose that the laws of supply and demand are being covered. Under the slide show method, the professor might decide to cover price and the law of demand and then show how income and then tastes then expectations about future prices, etc. shift the demand curve itself. Under the hyperlink method, the lecture can be built around the central question of “What factors affect demand for goods?” A home page with active buttons leading to short topics such as income effects, tastes, expectations about future prices, etc. is created. Instead of the professor deciding order and depth to which to cover the topics being discussed, this method encourages active learning since the students themselves can choose the course of the lecture. In addition, students viewing this type of presentation are more likely to pay close attention since the class will cover the topics in which the students are most interested.

When questions arise, the presentation can easily be directed to the appropriate topic through the home page. While the professor still needs to be able to anticipate type of questions that will be asked in order to create the correct slide, the professor no longer needs to be able to anticipate the exact timing of the question since the appropriate answer can be accessed at any time in the

presentation. In cases where student questions or responses are not anticipated, an active button on the home page can be included for use on a future date.

To maximize the dialogic nature of the presentation, the total amount of available material in the PowerPoint presentation will need to exceed the amount of class time available to discuss the material. The professor should note which topics from the presentation have been covered so that any material missed based on the specific direction of the conversation in a class can be covered at a later date. Alternatively, the professor may wish to simply skip any topics not covered to order to examine the topics chosen by the class in a greater depth.

The hyperlink presentation can also be easily adjusted for use in academic presentations. While a researcher may decide that a conference presentation is not the appropriate place to allow the audience to decide the direction of the lecture, an ability to easily access specific pages from the presentation can be quite handy during a question and answer period.

Conclusion

While PowerPoint can be justly criticized as a passive method of instruction, the use of hyperlinks can turn PowerPoint from a fancy overhead to a tool for presenting an interactive lecture. Hyperlinks allow the user of PowerPoint to take advantage of the multiple benefits of the PowerPoint presentation tool while maintaining a classroom teaching style based upon the presumption that students learn best when they are active participants in the learning process.

Downloadable materials

Readers are invited to download a copy of this paper or a template for a hyperlinked presentation for Microsoft PowerPoint 2000 from www.lfc.edu/~matheson/powerpoint.htm.

References

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Several articles I have only in photocopy and the proper citation is unclear due to the quality or completeness of the photocopy. Don't send the academic dishonesty police after me for improper citation for this breach!

PowerPoint as More than a Just a Fancy Overhead

The Interactive Lecture: PowerPoint as a Tool

“Slide Show” Presentation Model: Transmissionist

1. Organized linearly or chronologically.
2. Teacher controls the order and sequence of what is covered.
3. Teacher decides what is important and the depth of the presentation of the sub-topics.

Hyperlinked Presentation Model: Constructivist

1. Organized around a central topic.
2. Students’ questions and comments direct the order and sequence of the lecture material.
3. Students decide the depth of the presentation.
4. Can use the concept map structure as a topic overview. Can add material to the map as the unit progresses. This can be done interactively with students as a way to conclude lectures, finish discussions on associated readings, or summarize interactive activities/labs.

Template for Organizing Interactive PowerPoint Lectures

1. Begin by deciding what the central question is for the material. What will students discover from listening and interacting with this material?
2. Construct a reflective activity to have them explore the dimensions of the topic: scenarios, “opinionnaire,” anticipation guide, survey, reflective writing, etc.
3. Construct discussion questions about the reflective activity which will lead students to inquire about the question or topic in more depth. Make each of these questions into a separate link. Organize lecture material under each link.
4. Allow the students to decide which link should be covered next based on the direction of the discussion of the initial reflective activity.
5. As you present, be sure to ask for students’ ideas before clicking for more information to appear so that students can check their knowledge against the new knowledge being presented.
6. Become comfortable with the fact that not all of the information will be presented in the initial lecture. Be sure to mark which slides were presented. Reorganize slides for follow up lectures or connections to reading or other learning experiences (e.g. laboratories, problem sets, etc.) Have students conclude the lecture by returning to the original reflective activity and commenting on what they now see or believe they know about it.