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ABSTRACT

Students of today, who have grown up with and become accustomed to the visual stimulation of television, computers, and video games, expect technology to be used effectively as part of their learning experience. As a result, faculty are continuously challenged to hold the attention of these learners from the high-tech generation. Through the thoughtful use of computer presentation programs, faculty can create professional-looking presentations to enhance student learning and achieve course goals. The intent of this study was to assess student perceptions on the value of PowerPoint presentations in lectures. One hundred sixty undergraduate students at the University of Pittsburgh completed a 12-item Likert scale survey and two open-ended questions regarding the use of PowerPoint. Results from the survey are discussed, along with the professor's goals for using PowerPoint. The majority of students agreed that PowerPoint had a positive effect on lectures, especially in helping them to take notes and to study for exams. They preferred PowerPoint lectures to traditional lectures using a blackboard or whiteboard. They also perceived professors who delivered PowerPoint as being more organized. Students did not believe that making PowerPoint slides available before class was a strong motivator or deterrent in attending class. A literature review and the student PowerPoint survey are included. (AEF)

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Learners' Perceptions on the Value of PowerPoint in Lectures

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Learners' Perceptions on the Value of PowerPoint in Lectures

Abstract

The intent of this study was to assess student perceptions on the value of PowerPoint presentations in lectures. One hundred sixty undergraduate students at the University of Pittsburgh completed a 12-item Likert scale survey and two opened-ended questions regarding the use of PowerPoint. Results from the survey are discussed, along with the professor's goals for using PowerPoint. The majority of students agreed that PowerPoint had a positive effect on lectures, especially in helping them to take notes and to study for exams. They preferred PowerPoint lectures over traditional lectures using a blackboard or whiteboard. They also perceived professors who delivered PowerPoint as being more organized. Students did not believe that making PowerPoint slides available before class was a strong motivator or deterrent in attending class. A literature review and the student PowerPoint survey are included.

Students of today, who have grown up with and become accustomed to the visual stimulation of television, computers, and video games, expect technology to be used effectively as part of their learning experience. As a result, faculty are continuously challenged to hold the attention of these learners from the high-tech generation. Through the thoughtful use of computer presentation programs (such as Microsoft PowerPoint, Compel, Aldus Persuasion, and Gold Disk Astound), faculty can create professional-looking presentations to enhance student learning and achieve course goals.

This article summarizes our results of a student survey, in which we examined undergraduate perceptions of the use of PowerPoint presentations to enhance the accessibility of classroom lectures. The survey was administered to a large-enrollment course at the University of Pittsburgh. In this particular course, the PowerPoint presentations were coordinated with class lectures and posted on the course Web site prior to class, and students had been advised to bring print-outs of the slides to class as a way of organizing their notes. However, the survey instructions directed students to assess the PowerPoint presentations used in all their academic courses. Our goal was to gain insight into the practice of using presentation software in lecture courses.

Literature review

Literature evaluating the effectiveness of PowerPoint-assisted lecturing in higher education is somewhat limited. Ample resources are available to guide instructors and course developers in graphic design for computer generated presentation software, but guidelines to enhance the instructional value of the resulting presentations are lacking. A search of literature on the instructional effectiveness of presentation software in the traditional classroom revealed relatively little. The following studies represent some of the literature which we did find.

Szabo and Hastings (2000) performed three studies to investigate the efficacy of PowerPoint lecturing in undergraduate classrooms. Results showed that PowerPoint presentations should not be viewed as a replacement for the blackboard, but, rather, as an efficient auxiliary medium. The difficulty of the lectures, rather than the efficacy of PowerPoint lecturing, contributed to the grade differences among the three groups. However, it did appear that PowerPoint lectures might benefit learner recall.

An experimental study from the United Kingdom reported by Lowry (1999) compared exam scores for three cohorts of higher education students (n=130). Results revealed that the two PowerPoint lecture groups achieved better grades than the traditional lecture cohort did. In addition, the students exposed to the PowerPoint lecturing had a positive attitude toward the teaching method.

In another study of students' perceptions of PowerPoint, Atkins-Syres and others (1998) surveyed 485 university students. They found the following results: (1) students had a high regard for classes using PowerPoint as a lecture tool, (2) 69 percent of the students perceived PowerPoint as a cognitive tool, and (3) the use of the technology significantly increased the desire for Hispanic students and English-as-a-second-language students to see the technology used in other classes.

Harknett and Cobane (1997) surveyed students regarding the efficacy of PowerPoint in lecturing. Eighty percent of the students felt that PowerPoint lectures benefited their learning. Some also felt that the visual emphasis in PowerPoint helped them recall the lecture material during exams.

Methodology

In our study of student perceptions, we made several assumptions which are important to note. First, we assumed that students know when they are learning (McKeachie). We also assumed that attention is selective and fluctuating, and that attention to some part of a statement is necessary if one is to remember the message (Coats & Smidchens).

Sample

In Fall 2001, 160 students or roughly 50% of the total 322-student enrollment for the course Russian Fair Tales participated in this study. The survey was administered during the first ten minutes of class during the last class meeting of the semester. The student body was widely distributed across schools, majors, and year of study. Because the survey was administered only to students attending mandatory small discussion ("recitation") sections of the course, we assume that students participating in the survey were more interested in either the course material or their grades or both than those who were not present on the day of the survey.

Instrument

The assessment instrument, Presentation Software Survey, was administered to a large-enrollment undergraduate class. The 12-item Likert Scale survey examined student perceptions of the following elements regarding PowerPoint presentations: (1) student attention to lecture, (2) classroom behavior during lecture, (3) preference for blackboard/whiteboard lecture, (4) value of handouts for note taking, (5) value of handouts for studying, (6) organization of lecture, (7) slide format, (8) student recall of visual images, (9) student motivation, (10) identification of key points, (11) student attitude, and (12) student attendance. The 12 items were rated on a five-point scale from strongly disagree to strongly agree, with a middle score of "neutral."

Two open-ended questions asked students (1) the reasons they would like to see (or not see) PowerPoint presentations in future courses and (2) their suggestions for improving PowerPoint presentations. Students completed the survey anonymously.

Survey Results

The majority of students had positive perceptions about the use of PowerPoint in lectures. Sixty-nine percent of the students either strongly agreed (5) or agreed (4) that PowerPoint presentations held their attention. Only 12 percent of the students preferred use of a blackboard or whiteboard over PowerPoint during lectures. Seventy-nine percent of the respondents perceived their professors who used PowerPoint as being more organized during lectures.

The handouts students were able to print from the PowerPoint files were another benefit of the presentations. Eighty percent of the learners strongly agreed (5) or agreed (4) that the handouts helped them to take class notes. Furthermore, 91 percent of the students strongly agreed (5) or agreed (4) that the handouts helped them study. In fact, using the handouts to study had the highest mean score of 4.34. Finally, 85 percent of the students reported that PowerPoint presentations emphasized key points.

The students reported that PowerPoint software presentation did not seem to have a major effect on classroom behavior or student attendance. Only 19 percent of students strongly agreed (5) or agreed (4) that PowerPoint presentations increased the likelihood of inappropriate classroom behavior, whereas 49 percent strongly disagreed (5) or disagreed (4) with this. Only 15 percent of the respondents indicated that they were less likely to attend class when PowerPoint presentations were posted on the Web.

As for the design of the PowerPoint slides, students had a slight preference for visual images rather than text-only content. Just 19 percent strongly agreed (5) or agreed (4) that they preferred bullet-point, text slides over graphics; however, 56 percent strongly disagreed (1) or disagree (2) with text over graphics. Interestingly, 34 percent of all respondents were neutral on their preference, which may reflect our failure to present the question in a way that connected the choice with the appropriateness of different media to

communicating different types of information. Seventy-two percent of indicated that visual images helped them to recall content during exams.

The mean responses for the survey questions are summarized in Table 1.

Table 1: Survey Questions and Means

Survey Questions	Means
1. PowerPoint presentations hold my attention.	3.75
2. PowerPoint presentations increase the likelihood of inappropriate classroom behavior.	2.59
3. I prefer traditional lectures using a blackboard or whiteboard to PowerPoint presentations.	2.09
4. PowerPoint handouts help me to take better notes during classroom lectures.	4.08
5. Handouts printed from PowerPoint presentations help me to study for course exams.	4.34
6. Professors who use PowerPoint presentations are more organized during their presentations.	4.08
7. I prefer bullet-point, text-only PowerPoint presentations over presentations with audio, video, or graphics.	2.44
8. Visual images presented in PowerPoint presentation lectures help me to recall content during exams.	3.84
9. I am less motivated to attend class when PowerPoint presentations are used during the lecture.	2.54
10. PowerPoint presentations help to emphasize key points during lectures.	4.09
11. I have a positive attitude towards PowerPoint presentations.	3.97
12. I am less likely to attend class when the professor posts PowerPoint handouts to the Web.	2.68

Fifty-one students responded to the first open-ended question on reasons to use (or not use) PowerPoint presentations. The majority of students noted positive perceptions. The following comments reflect their satisfaction:

- I print out notes beforehand so I don't have to take as many notes and I can pay attention to what the lecturer is saying. (8)
- They are very helpful in reviewing for exams. (5)
- They make the material more clear and organized to me. (2)
- This was my only class that posted notes on the Web with PowerPoint. I would really like to see it with other large classes because it is helpful.
- As a LD [learning disabled] student I notice I do far better in classes that do use PowerPoint.
- They make it easier to keep up and tuned in. They really help with studying, too.
- I would like more PowerPoint because it is easier to follow the lecture and listen more closely.
- I like PowerPoint because it allows to me to see the main points of the lecture even if I have to miss class for some reason.

Only six of the 51 learner responses reflected negative perceptions. The following comments summarize these negative comments:

- I am less likely to remember something if I do not write it. (2)
- Presentations are much more boring and hard to pay attention to.
- Sometimes the instructor goes through the material much faster than if using a blackboard.
- Many professors do not allow proper time for absorption of the material when they don't have to write out key points.
- I don't like using all the paper/ink to print them out.

The second open-ended question asked students for suggestions for improving PowerPoint presentations. Fifteen students respond with the following types of suggestions:

- Provide a little more detail. (4)
- Don't use them. (2)
- Make them available sooner on the Web. (2)
- Make them easier to download and print. (2)
- Mix them up a bit instead of just presenting lists.
- Make more links in them.
- Slow down - just because it is on PowerPoint and on the Web does not mean some students don't want to copy the notes down - some people learn better by writing.
- Provide more description of pictures.

General Discussion

Higher education is experiencing a technological revolution that directs attention to the ways we teach and the ways students learn. PowerPoint is often the first step for faculty incorporating technological into their courses. This study attempted to analyze the value of computer-generated presentations and how students perceive their impact.

Overall, it appeared that PowerPoint had a positive effect on lectures. Most students preferred PowerPoint presentations over the traditional blackboard or whiteboard. One of primary benefits of PowerPoint presentations seemed to be student access to printable copies of the slides. In some courses, students were able to download the files from the Web, so that they could use these materials for studying, note taking, identifying key points, and organizing course material. Furthermore, the majority of learners believed that PowerPoint lectures helped to hold their attention. They did not believe that PowerPoint was a strong motivator or deterrent in attending class.

An important aspect of creating effective PowerPoint slides is designing presentations that emphasize key points and provide supporting examples, including visual images. Students depend on these presentations for organizing and processing course content. The challenge seems to be in balancing the amount of lecture detail with the student benefit of taking notes. When posting PowerPoint files to the Web prior to class, student attendance may be a consideration in determining the amount of slide detail. There is also a balance

between the students' desire for visual images and their desire for small files that download and print quickly. During the PowerPoint lecture, instructors should be aware of their pace and monitor student note taking. There may be a tendency for instructors who use PowerPoint to talk more quickly.

Professors' Perspective

The Russian Fairy Tales course had grown over the space of five years from of an initial enrollment of fifty to over 300 at the time of the survey (and over 400 the following semester). In an attempt to make the course accessible to a student body that has been increasing rapidly both in overall quantity and in diversity of background and learning style, the instructors quickly decided to introduce a web site (for supporting material) and to supplement their lectures with transparencies and 35mm slides of relevant art (as well as film clips and music). We moved from transparencies and slides to PowerPoint as a way of integrating both types of projection within a single medium, and then began posting the PowerPoint slides on the course web site in advance of the lectures and advising the students to print them out and bring them to class as a way of organizing their own notes.

The instructors speak quickly and did not want students to be distracted from listening to substantive lecture material by trying to copy down such factual material as dates or long Russian names. On the other hand, the instructors did not want to make the PowerPoint slides a substitute for lecture; our goal was that the presentation would tell the students what we were going to talk about, and would provide them with factual details, but it would not tell them everything we were going to say. The on-line course description explains to the students that "[t]he PowerPoint slides are deliberately designed to be outlines, rather than detailed summaries of the lecture; they can help you follow the lecture, organize your own notes, and review for quizzes and examinations, but they are not a substitute for attending lecture and taking notes yourself."

Conclusion

This survey to assess student perceptions on the value of PowerPoint presentations is a step towards understanding the instructional design of presentation software in college and university lectures. Continued research is needed on successful strategies for using presentation software to achieve course goals. In particular, strategies for organizing the content through text, images, and multimedia would be helpful.

Attending lectures enhanced with presentation software still remains a relatively passive instructional activity. Research on strategies that incorporate active learning into presentations would be valuable—especially for large-enrollment courses. In addition to the traditional classroom application, PowerPoint is a growing instructional tool in online courses. Successful strategies for using PowerPoint in online teaching environments also warrant further investigation. With careful attention to the instructional purpose and design, presentation software programs such as PowerPoint can be a valuable tool in higher education lectures.

Resources

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Apprendix A

PRESENTATION SOFTWARE SURVEY
STUDENT PERSPECTIVE

Instructions: Microsoft PowerPoint is a software program which creates presentations used by faculty to enhance their lectures. This study examines your perspectives as a student and will assist faculty in enhancing the teaching/learning value of using PowerPoint. Thank you for your cooperation.

Think about all of the PowerPoint lectures that you have attended in your academic coursework. On average, how would you evaluate these PowerPoint presentations? Please respond by circling one of the five responses ranging from Strongly Disagree (SD) to Strongly Agree (SA). If you neither agree nor disagree, circle "N" for neutral.

1. PowerPoint presentations hold my attention.	SD	D	N	A	SA
2. PowerPoint presentations increase the likelihood of inappropriate classroom behavior.	SD	D	N	A	SA
3. I prefer traditional lectures using a blackboard or whiteboard to PowerPoint presentations.	SD	D	N	A	SA
4. PowerPoint handouts help me to take better notes during classroom lectures.	SD	D	N	A	SA
5. Handouts printed from PowerPoint presentations help me to study for course exams.	SD	D	N	A	SA
6. Professors who use PowerPoint presentations are more organized during their presentations.	SD	D	N	A	SA
7. I prefer bullet-point, text-only PowerPoint presentations over presentations with audio, video, or graphics.	SD	D	N	A	SA
8. Visual images presented in PowerPoint presentation lectures help me to recall content during exams.	SD	D	N	A	SA
9. I am less motivated to attend class when PowerPoint presentations are used during the lecture.	SD	D	N	A	SA
10. PowerPoint presentations help to emphasize key points during lectures.	SD	D	N	A	SA
11. I have a positive attitude towards PowerPoint presentations.	SD	D	N	A	SA
12. I am less likely to attend class when the professor posts PowerPoint handouts to the Web.	SD	D	N	A	SA

Are there any other reasons you would like to see (or not see) PowerPoint presentations in the future?

Do you have any suggestions for improving PowerPoint presentations?

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