

WHAT DO STUDENTS REALLY THINK ABOUT POWERPOINT LECTURES?

Claude Simpson, The University of Texas Pan American, csimpson@panam.edu
Lissa Pollacia, Professor of CIS, Northwestern State University, pollacia@nsula.edu
Jimmy Speers, Assistant Professor, Southeastern Oklahoma State Univ., jspeers@sosu.edu
T. Hillman Willis, Professor of Business, Louisiana Tech University, thwillis@latech.edu

ABSTRACT

There are some indications that PowerPoint is currently not well received in business presentations. A WEB-based investigation of student evaluations of faculty seemed to indicate that there were a large number of students who did not like PowerPoint presentations. This research seeks to investigate student opinions of the use of PowerPoint in classroom lectures.

Keywords: PowerPoint, lecture, student evaluations, distance education, SmartBoard, color, images

INTRODUCTION

Most instructor materials that accompany textbooks contain canned PowerPoint lectures. Some faculty develop PowerPoint lectures for those textbooks that do not have these materials. With over 300 million PowerPoint users, is this a viable presentation tool [1]? The convenience of these materials may lead faculty into thinking that this is a viable way to present subject materials for a specific class. But is it? Do students feel that they are effectively learning materials presented in this manner? What are their feelings about the use of PowerPoint in classes that they have had and are taking? Do women have more positive feelings about PowerPoint lectures than do men? Is there a difference of opinion about PowerPoint between distance education courses and traditional courses?

Secondary research in the library and on the web led to the belief that student opinions were mostly negative toward PowerPoint presentations. Are they? There is a growing body of literature that seems to indicate that PowerPoint presentations are coming into disfavor in businesses and that there are advantages and disadvantages to the use of PowerPoint [1-6]. Are the reasons for using PowerPoint similar for college lectures and business presentations? These are some questions that this research attempts to answer.

RESEARCH METHODOLOGY

After an extensive library and web search of student evaluations of teaching in courses that use PowerPoint, a questionnaire was developed that addressed certain issues about using PowerPoint lectures in classes. A five point ordinal response frame from strongly agree to strongly disagree was used to respond to statements concerning PowerPoint presentations. A "no basis for opinion" response is also included for each statement. Category data were also collected to aid data analysis.

The data from the questionnaires were entered into SPSS and analyzed. The method used to evaluate these data was mostly frequency distributions with some Chi-Square, cross-tabs, and Kolmogorov-Smirnov analysis.

Findings

The questionnaire was presented on a web site and students in classes in Oklahoma and Louisiana were invited to participate in the survey. One hundred forty two useable responses were obtained.

The questionnaire consisted of the following statements:

1. Seeing images helps me understand ideas.
2. Color or images add interest to the material.
3. I understand the lecture better when presented using PowerPoint slides.
4. PowerPoint slides help organize the main points of the lesson.
5. The PowerPoint text on the screen is large enough to read.
6. Long passages of text (3 lines or more) on a PowerPoint slide are easy to read.
7. The lighting in the classroom is bright enough for note-taking when using PowerPoint.
8. The pace of the course when using PowerPoint is appropriate.
9. I feel that I do not need to attend class if I receive the PowerPoint presentations before or after a lecture.
10. Being able to review slides after class helps me to reinforce my understanding of the material.
11. The use of PowerPoint is helping me get a better grade in this course.
12. I don't think I could pass this course if PowerPoint was not available.
13. I would prefer for the instructor to use the chalkboard rather than PowerPoint.
14. I would prefer that the instructor provide more lecture discussion rather than use PowerPoint slides.
15. PowerPoint slides help me to ask relevant questions about the material.
16. The way PowerPoint is used in class helps with class discussion.
17. The instructor balances attention to the screen and the class when using PowerPoint.
18. The instructor faces away from the class too much when using the chalkboard.
19. The instructor balances PowerPoint lectures with other class activities (e.g. discussion, classroom work on projects, exercises, etc...).
20. Technical problems with the computer presentations are distracting.
21. My professor(s) hands out copies of PowerPoint lectures to students in a class.
22. All things considered, I would regard PowerPoint presentations as a positive aspect of the course.
23. All things considered, I would take another course that uses PowerPoint in a similar way.
24. My classroom is equipped with a "SmartBoard" or "ScreenWriter" so that the instructor can write on the slides during class.
25. The use of Smart Board or ScreenWriter by an instructor during a PowerPoint presentation makes the presentation more effective.
26. Overall, I prefer PowerPoint presentations over strictly lecture classes.

Respondents were asked questions concerning demographics, such as age and gender. Data were also gathered about whether the course was being taught through a distance learning medium. Finally, an open-ended comments section was provided.

Demographics

The survey included 65 males (45.8 percent) and 76 females (53.5 percent) with one non-response. The average age of the 139 valid responses was 25.93 with a range from 18 years to 59 years. Classification of students included in the study were 2.8 percent freshmen, 5.6 percent sophomore, 35.3 percent junior, 45.8 percent senior, 9.2 percent graduate, and 1.4 percent other. This distribution of students toward upper division gave enough students at the upper division to provide students with enough experience in receiving lectures in PowerPoint to help validate the study results.

The responses are useful in describing student opinions in a small university; there were no large universities included in the study. There is fair representation of gender, age, and student classification.

Further, in a summary of whether or not the class was being taken as a distance education course, there were four no responses, 88 students (62 percent) who were taking the class in a traditional setting, and 50 students (35.2 percent) who were taking the course via some distance education medium. This should provide a basis for analyzing whether there is a difference of opinion about PowerPoint presentations between the distance group and the non-distance group.

Results of the Study

The following table contains the results of the survey. The question is an abbreviated version of the questions presented above. The Strongly Agree (SA) to No Opinion (NO) response frames included the percent responses in that category for each question.

Table 1
Summary of Questionnaire Results

	Abbreviated Question	SA	A	N	D	SD	NO
1	Images help me understand ideas	57.7	33.1	4.2	3.5	1.4	0
2	Color or images add interest	54.9	33.8	7.0	2.8	.7	.7
3	I understand the lecture better	35.9	36.6	19.0	4.2	3.5	.7
4	Helps organize main points	51.4	40.1	4.2	3.5	.7	0
5	Can read text size	31.7	38.7	17.6	6.3	3.5	2.1
6	Long passages are easy to read	12.0	28.9	26.8	21.1	9.2	2.1
7	Lights bright enough for notes	28.2	43.7	13.4	6.3	1.4	3.5
8	Pace course appropriate	24.6	46.5	16.2	7.7	1.4	3.5
9	I do not need to attend class	4.2	16.9	19.7	33.8	19.0	5.7
10	Slide review helps	38.7	44.4	7.0	5.6	1.4	2.1
11	Better grade with PowerPoint	17.6	33.8	31.0	8.5	5.6	3.5
12	Couldn't pass w/o PowerPoint	6.3	8.5	23.9	28.9	25.4	6.3
13	Prefer chalkboard	3.5	6.3	18.3	30.3	33.8	4.9
14	Prefer more lecture over PowerPoint	4.9	11.3	24.6	32.4	20.4	6.3
15	Can ask relevant questions	13.4	38.0	33.8	12.0	2.1	.7
16	PowerPoint helps with discussion	21.1	43.0	17.6	9.2	4.2	4.9
17	Instructor balances attention	17.6	50.0	14.1	8.5	2.1	7.7
18	Instructor faces away too much w/chalkboard	9.2	12.0	27.5	23.9	14.8	12.7
19	Balance PowerPoint with class activity	21.1	43.0	16.9	9.9	1.4	7.7
20	Technical problems are distracting	16.2	31.0	21.1	19.0	7.0	5.6
21	Professor hands out copies of slides	9.9	14.8	12.0	15.5	31.7	16.2
22	PowerPoint was positive course aspect	41.5	41.5	7.0	3.5	4.2	2.1
23	Consider another course using PowerPoint	38.0	41.5	10.6	4.2	2.1	3.5
24	Smartboard or ScreenWriter	27.5	12.7	8.5	9.9	7.7	33.8
25	Use of Smartboard or ScreenWriter helped	25.4	22.5	9.2	4.9	1.4	36.6
26	Overall evaluation of PowerPoint	43.0	36.6	9.9	4.2	5.6	.7

Source: Questionnaires

A review of literature on the WWW led us to believe that students had problems with PowerPoint. The results in this table do not support our preconceived notion. Every question that relates to the use of PowerPoint indicates that the student opinion of the use of PowerPoint is

positive. Another telling result is the response to the preference opinion for the chalkboard presentation (Statement 13). Only 9.8 percent of the students who responded to this question prefer a chalkboard over a PowerPoint presentation. The question related to the overall preference for PowerPoint (Statement 26) indicated that 79.6 percent of the students surveyed preferred PowerPoint over strictly lecture classes.

Comparison of Opinions between Distance and Traditional Classes

Tables 2 and 3, presented below, are based on the totals of all responses. Table 2 indicates that although there are minor differences in opinions between the two groups; there are no significant differences between student opinions of students who are taking the class in a distance environment from those taking the class in a traditional setting. The statistical tests associated with cross-tabs corroborate this finding. We could not reject a null hypothesis about there being a significant difference between opinions of distance students from traditional students concerning the overall opinion regarding PowerPoint presentations. (Statistical findings are available on request.)

Table 2

OVERALL * DISTANCE Crosstabulation

			DISTANCE		Total
			1	2	
OVERALL	1	Count	20	41	61
		% within OVERALL	32.8%	67.2%	100.0%
		% within DISTANCE	40.0%	46.6%	44.2%
		% of Total	14.5%	29.7%	44.2%
	2	Count	17	35	52
		% within OVERALL	32.7%	67.3%	100.0%
		% within DISTANCE	34.0%	39.8%	37.7%
		% of Total	12.3%	25.4%	37.7%
	3	Count	6	7	13
		% within OVERALL	46.2%	53.8%	100.0%
		% within DISTANCE	12.0%	8.0%	9.4%
		% of Total	4.3%	5.1%	9.4%
4	Count	3	2	5	
	% within OVERALL	60.0%	40.0%	100.0%	
	% within DISTANCE	6.0%	2.3%	3.6%	
	% of Total	2.2%	1.4%	3.6%	
5	Count	4	3	7	
	% within OVERALL	57.1%	42.9%	100.0%	
	% within DISTANCE	8.0%	3.4%	5.1%	
	% of Total	2.9%	2.2%	5.1%	
Total	Count	50	88	138	
	% within OVERALL	36.2%	63.8%	100.0%	
	% within DISTANCE	100.0%	100.0%	100.0%	
	% of Total	36.2%	63.8%	100.0%	

Source: SPSS Analysis of Questionnaire Responses

Comparison of Opinions Male to Female

One of the questions asked earlier in this paper was whether or not there were in differences between male and female opinions about the use of PowerPoint in presentations. The following table presents the results of this comparison.

Table 3
OVERALL * GENDER Crosstabulation

		Gender 1	Gender 2	Total
OVERALL	1 Count	20	41	61
	% within OVERALL	32.8%	67.2%	100.0%
	% within GENDER	30.8%	53.9%	43.3%
	% within TOTAL	14.2%	29.1%	43.3%
	2 Count	29	23	52
	% within OVERALL	55.8%	44.2%	100.0%
	% within GENDER	44.6%	30.3%	36.9%
	% within TOTAL	20.6%	16.3%	36.9%
	3 Count	8	6	14
	% within OVERALL	57.1%	42.9%	100%
	% within GENDER	12.3%	7.9%	9.9%
	% within TOTAL	5.7%	4.3%	9.9%
	4 Count	5	1	6
	% within OVERALL	83.3%	16.7%	100.0%
	% within GENDER	7.7%	1.3%	4.3%
	% within TOTAL	3.5%	.7%	4.3%
	5 Count	3	5	8
	% within OVERALL	37.5%	62.5%	100.0%
	% within GENDER	4.6%	6.6%	5.7%
	% within TOTAL	2.1%	3.5%	5.7%
Total	Count	65	76	141
	% within OVERALL	46.1%	53.9%	100.0%
	% within GENDER	100.0%	100.0%	100.0%
	% of TOTAL	46.1%	53.9%	100.0%

Source: SPSS Analysis of Questionnaire Responses

These data were subjected to an analysis of the differences between male vs. female opinions of the overall efficacy of PowerPoint presentations. We were able to reject a null hypothesis at the $p < .01$ level. The large difference in the two distributions was in the "strongly agree" response for females which was much higher than for males. When considering the responses "strongly agree" and "agree" there was almost no differences in the two distributions.

The open comments area did reveal some dissatisfaction with PowerPoint. The following are some responses that were received on the questionnaires.

"I feel that lecture and hands on learning are superior to PowerPoint presentations."

"PowerPoint should not be used in place of all lecturing, especially when it involves such technical material."

"My teacher uses both PowerPoint and the blackboard in class and maintains a good balance between lecture and slides."

"Dr. Pollacia's usage of PowerPoint helps me acquire a better understanding of the course material."

"I think that the use of PowerPoint and the smartboards was a great idea."

"Using PowerPoint presentations in class deter from the inability to read professors' handwriting."

"I enjoy classes with PowerPoint because I don't have to write a whole lot of notes so I can pay attention."

"I rated some classes three where I had trouble with the PowerPoint presentations and others where I have not."

"When the instructor strictly uses PowerPoint the class is boring and attention level is low, but when the instructor adds activities with the PowerPoint it helps as a learning aid."

"PowerPoint should be used more widely throughout the class."

"The only problem I have with PowerPoint is that some of the instructors leave the PowerPoint up through the whole lecture and you cannot interact with the class."

"My name is . . . and I feel that by using PowerPoint to reinforce ideas brought forward in a lecture helps to solidify those thoughts in the student's mind."

"I prefer traditional classroom lectures to PowerPoint presentations in the classroom. There seems to be less interaction with students and the pace is quickened."

"PowerPoint slides should not replace lectures. But are definitely an asset to learning."

"PowerPoint slides should not take the place of the instructor."

"I am definitely a visual learner and PowerPoint is great for me."

These responses are revealing in that almost all of these respondents were very positive in their responses to the use of PowerPoint. The responses that are listed above tend to indicate that this group of students thinks that PowerPoint is all right if it is used in conjunction with lectures. The question related to the use of chalkboard presentations seems to indicate that students do like this form of presentation when lectures do not include PowerPoint or some other form of interaction.

SUMMARY AND CONCLUSIONS

PowerPoint, from this research, seems to be a favored means of presenting materials in the classroom. From the summary tables presented above, all facets of the use of PowerPoint in the classroom are favored over other means of presentations.

Students who responded seem to feel that PowerPoint presentations aid their learning activities. They also felt that the use of colors and images was a positive factor in the use of PowerPoint.

They felt that the lectures were better organized with the use of PowerPoint as well as that instructors were able to balance their attention between the student and the presentation.

Some of the students felt that there were some distractions to the use of PowerPoint. Namely, technical problems with computer equipment tended to distract from the class presentation. Also, students felt that they needed to have the slides handed out in order to review the class materials.

An analysis of whether students preferred PowerPoint presentations in distance education classes over presentations in traditional classes indicated that there was no statistical difference between the opinions of students in these two groups about the efficacy of PowerPoint presentation.

Further, analysis of gender differences of opinion concerning PowerPoint use showed a statistically significant difference in the two groups. Female students preferred PowerPoint more at the "strongly agree" response frame than did males who more strongly used the "Agree" response.

REFERENCES

1. Keller, J., *Is PowerPoint the devil?* 2003, Good Morning Silicon Valley.
2. Creed, T., *PowerPoint no, cyberspace yes...*, National Teaching and Learning Forum (NTLF).
3. Envisioneers, *Technology in the classroom: a report for dr. tom linzinger.* 2001, Envisioneers. p. 3-5.
4. Nunberg, G., *The trouble with PowerPoint.* Fortune, 1999.
5. Rocklin, T., *PowerPoint is not evil...*, NTLF, vol 2 no. 12.
6. Stewart, T.A., *Ban it now! friends don't let friends use PowerPoint.* Fortune, 2001(Sunday February 11).