

# **PowerPoint Presentations: Do They Really Work?**

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# Overview

- **Objectives**
- **Background**
  - **Increased Interest in Education**
  - **Enhancing Engineering Education**
  - **Traditional Lecture Format**
- **Methodology**
- **Results and Discussion**
- **Summary and Conclusions**

# Objectives

- **Conduct a study to determine the effectiveness of using PowerPoint Presentations to enhance student learning.**
- **Get student feedback on the likes and dislikes of using PowerPoint.**

# Primary Objective

- **Answer once and for all, unequivocally and irrefutably if PowerPoint presentations enhance student learning.**

# **Increased Interest in Undergraduate Education**

- **The public, industry, and state legislatures have scrutinized university educational systems in recent years.**
- **Engineering Criteria 2000 established by ABET to focus on the “product” of engineering education.**

# **Methods for Enhancing Learning**

- **Multimedia presentations & Internet.**
- **Computers & software packages.**
- **CD-ROM PowerPoint Presentations.**

# **Literature Focused on Format of PowerPoint Lectures**

- **Mechanics and formatting of PowerPoint Presentations primarily discussed.**
- **Assessment of PowerPoint presentations has not been well documented.**

# Traditional Lecture Promoted as Good Information Transfer Procedure

- *Good delivery*: clarity, pace, stimulation
- *Enthusiasm*: should impact both the listener and the lecturer.
- *Content command*: breadth and depth of knowledge of the given subject.



# Methodology

- **ANOVAs performed on students' project, final exam, and overall final grades.**
- **Comparisons made for three course offerings: Fall 98 (11 students), Fall 99 (6 students), and Spring 00 (10 students).**
- **Subjective experience of students collected.**

# Average Final Exam Grades

<b>Fall 98</b>	<b>Fall 99</b>	<b>Spring 00</b>
<b>3.32</b>	<b>2.25</b>	<b>2.60</b>

# ANOVA: Final Exam Grades

<b>F</b>	<b>F<sub>critical</sub></b>	<b>df</b>	<b><math>\alpha</math></b>
<b>2.59</b>	<b>3.40</b>	<b>2, 24</b>	<b>0.05</b>

# Average Design Project Grades

<b>Fall 98</b>	<b>Fall 99</b>	<b>Spring 00</b>
<b>2.45</b>	<b>2.83</b>	<b>3.70</b>

# ANOVA: Design Project Grades

<b>F</b>	<b>F<sub>critical</sub></b>	<b>df</b>	<b><math>\alpha</math></b>
<b>6.60</b>	<b>3.40</b>	<b>2, 24</b>	<b>0.05</b>

# Average Overall Final Grades

<b>Fall 98</b>	<b>Fall 99</b>	<b>Spring 00</b>
<b>2.64</b>	<b>2.00</b>	<b>3.05</b>

# ANOVA: Overall Final Grades

<b>F</b>	<b>F<sub>critical</sub></b>	<b>df</b>	<b><math>\alpha</math></b>
<b>2.72</b>	<b>3.40</b>	<b>2, 24</b>	<b>0.05</b>

# Positive Comments



- **Good for general information and when recollection is not required.**
- **Easier to follow along and comprehend with PowerPoint.**



# Positive Comments



- **Dynamic presentations with sound and animation keep student's interests.**
- **I spend most of the time trying to get all the notes when they are written on the board and do not always comprehend.**

# Positive Comments



- **Easy for the presenter to use and cover a lot of material in a short time.**
- **Lectures clearly outlined and readable.**
- **Professor can print out handouts for the students to follow.**

# Negative Comments



- **Not good for detailed information that must be learned and understood.**
- **Harder to understand when the teacher is explaining a long derivation on many slides.**

# Negative Comments



- **Teacher does a better job of explaining the material when writing on the board.**
- **When reviewing, it's not as easy to identify the most important points.**
- **Less attention is paid during the lectures since I have a handout to rely on.**

# Negative Comments



- **When lights are dim during the presentations, students tend to get sleepy.**
- **There is not as much interaction between professor and students.**

# Summary

- **Statistical assessment of the use of PowerPoint Presentations was made.**
- **Subjective assessment of the use of PowerPoint Presentations was made.**
- **A comparison of student grades on final exams, design projects, and overall grades was made when EVE 405 was offered with and without using PowerPoint Presentations.**

# Conclusions

- **No significant difference in student grades on final exams and overall final grades when PowerPoint Presentations were used.**
- **Student performance on the design project improved when PowerPoint was used.**
- **Students liked PowerPoint, however, they learned and understood complex material better when traditional lecture was used.**