

*The Effect of Content-Based Questions
Administered During PowerPoint
Presentations*

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Awesome Dude!

- *“All we have to do is read the PowerPoint Handouts!”*



*Does the Following Picture Look
All To Familiar?*





NO SMOKING
EATING OR DRINKING
IN THIS AREA



Wouldn't Be Nice if the Students Looked Like This?



“Dr. Gier, I don’t know Why I got a D on my test. I knew all of the PowerPoint handouts by heart!”

- *Did you take notes during class?*
 - *Well...No*
- *Did you read the textbook?*
 - *Ummm...No*
- *Did you attend every class?*
 - *We had to do that??*



Why Did I Conduct This Study?

- *Technology*
- *Chalk Mess/Allergies*
- *Personal Dislike of Overhead Projectors*
- *Student's Prefer PowerPoint*
- *Let's Review Some Pro's and Con's*



Pro's for PowerPoint Presentations

- *Handouts are convenient for studying*
- *Web links*
- *Less time writing-more time listening and participating*
- *May help those with learning disabilities*
- *Out Sick*
- *Entertaining*



Con's For PowerPoint Presentations

- *Skipping Class*
- *Less Note Taking*
- *Heavy Reliance on Handouts*
- *Computer Use During Class*
- *Too Much Dependency on Handout*
- *Blaming Instructor*
- *Creating Passive Students*

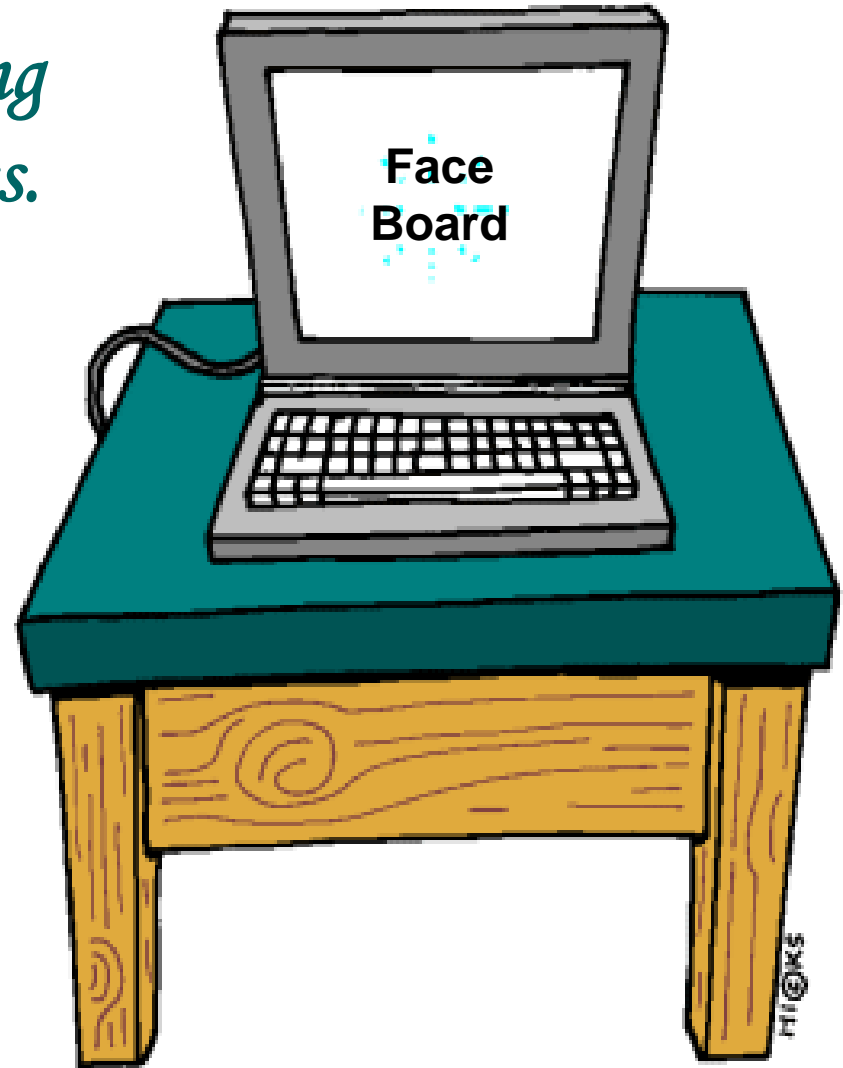


*More Students are Bringing
Laptop Computers to Class.*

Is this Good?

Or

Is this Bad?



Introduction

- *Contiguity Effect of Learning states that presenting both verbal and nonverbal information is more effective than a separate presentation of the verbal and visual (Blalock, & Montgomery, 2005; Michas & Berry, 2000).*



- *Dual Coding Theory (Pavio, 1990)*
 - *Memory for some verbal information is enhanced if a relevant visual is also presented or if the learner can imagine a visual image to go with the verbal information.*
 - *Likewise verbal information can often be enhanced when paired with a visual image, real or imagined (Anderson and Bower, 1973).*



- *Two studies were conducted to empirically test whether requiring students to answer content-based questions over material covered during a PowerPoint lecture would be more conducive for learning the material than PowerPoint lectures alone.*



Experiment One

- *Participants*

Thirty-two undergraduate psychology students (20 females and 12 males) with ages ranging from 20 – 43 years of age, enrolled in Cognitive Psychology Class gave consent to use their test scores for this study.



- *Materials*
- *PowerPoint presentation slides over topics in a Cognitive Psychology Class were used in the study.*
- *Content-based questions over the PowerPoint presentations and lecture, and a pre/post quiz over the material covered were used*
- *Two Exams*



- *Procedure*
- *The semester was divided into four equal parts for a Cognitive Psychology class*
- *During the first and third months of the semester, PowerPoint presentations (and slide handouts) and a quiz at the end of class were used.*



- *During the second and four months PowerPoint presentations (and slide handouts), content-based questions to be answered during class, and a quiz at the end of class was used*



- *The first and third exam periods were the control condition (no content-based questions)*
- *The second and fourth exam periods were the experimental condition*
 - *Include content-based questions during the PowerPoint presentations.*
 - *Quiz's*
 - *Exams*



Results

- *A one-way within subjects, quasi-experimental design*
- *The hypothesis was that there would be a significant difference between the two teaching methods*
- *The results of the study were analyzed using a dependent samples t-test and showed a significant difference between the control and experimental group:
 $t(31) = -4.56, p < .001$*

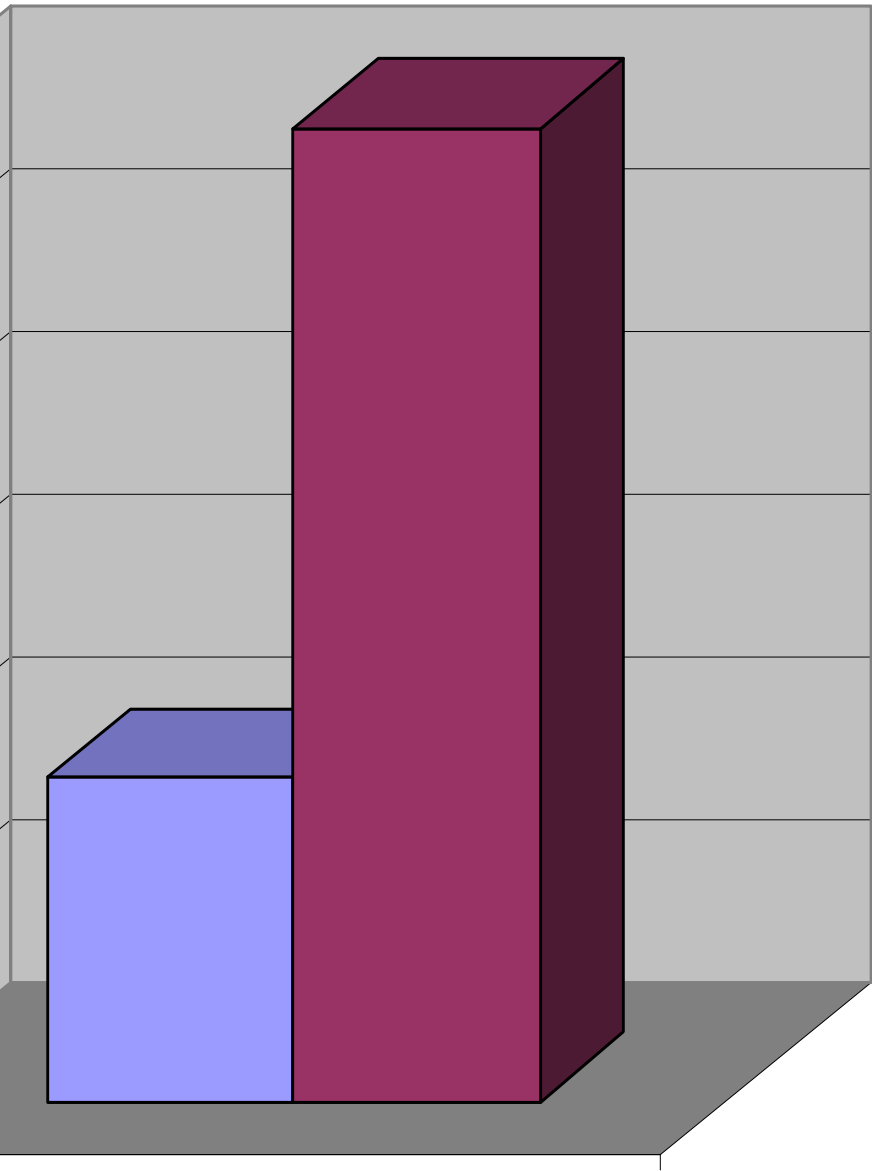


- *The M for the control condition was 75.4; whereas the M for the experimental condition was 84.86.*
- *Next Question: Would this method of teaching work in a different psychology class?*



Mean
Scores

86
84
82
80
78
76
74



- No Content-Based Questions
- Content-Based Questions

Content-Based Questions vs No Questions

Experiment Two

- *Participants*
- *Twenty-two psychology students taking a Sensation and Perception class volunteered to be in the study.*



- *Materials*
- *PowerPoint presentation slides over topics in a Sensation and Perception class were used in the study. Content-based questions over the PowerPoint presentations and lecture, and a pre/post test over the material covered, and two exams*



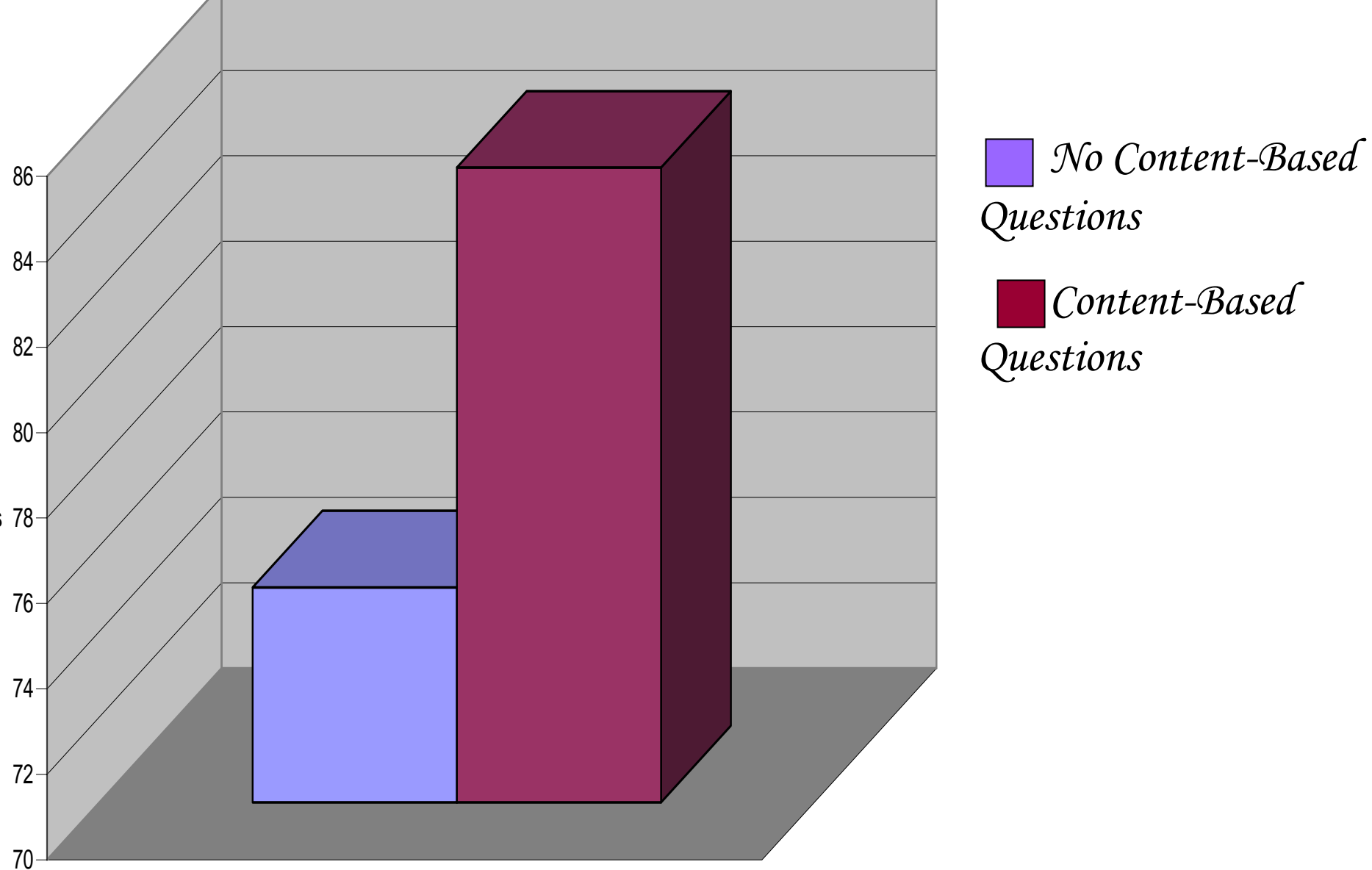
- *Procedure*
- *The procedure for the second study was identical to the first study except for using testing materials for Sensation and Perception than for Cognitive Psychology*



Results

- The results of the study were analyzed using a dependent samples t-test and showed a significant difference between the control and experimental group: $t(21) = -4.583, p < .001$. The M for the control condition was 77.59; whereas the M for the experimental condition was 87.68.*





Content Based Questions vs No Questions

Conclusions

- *The results of the study showed that including content-based questions during PowerPoint lectures were more effective for student outcomes than using a PowerPoint presentation alone.*



- *Both studies supported the Dual Coding Theory of Learning and the Contiguity of Learning Theory*



References

- *Michas, I. C. & Berry, D. C. (2000). Learning a procedural task: Effectiveness of multimedia presentations. Applied Cognitive Psychology, 14(6) 555-575.*
- *Pavio, A. (1990). Mental Representations: A Dual Coding Approach. New York: Oxford Press*
- *Rieber, L.P. (1994). Computers, graphics and learning. Madison. WI: WC Brown & Benchmark*



Thank You for Attending My Presentation

- *Questions, Comments, or Discussion?*

