

PEER INSTRUCTION VS. TRADITIONAL LECTURE

WHAT'S THE IMPACT ON STUDENT LEARNING?

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RESEARCH GOAL

- Purpose: To test the influence of two types of instructional techniques on student learning
 - Reciprocal teaching: students teach and learn from each other in small groups
 - Traditional lecture: instructor facilitates formal one-to-many discussion with students using Powerpoint

METHOD - PARTICIPANTS

- COMM 450: Theories of Conflict Management and Mediation
 - Upper level course
 - Majority Communication majors
- HUM DEV: More than ABC's and 123's: What we can learn from *Sesame Street*
 - First semester students
 - Human Development interest; many (potential) majors

METHOD - PREPARATION

- Prior to a joint class, each class was divided into groups of four
 - Two students in each group read Chapter 2 of *Getting to Yes: Negotiating Agreement Without Giving In* & created a one-page handout to use as a teaching tool that summarized the information in their chapter
 - *The other two students in each group read Chapter 3 of the same book & also created a one-page handout*
 - *All students read Chapter 1*

METHOD – JOINT CLASS

- Teaching:
 - Adolfo lectured for approx. 15 minutes on Ch. 1
 - Then 15 minutes for students who prepared Ch. 2 to teach the other two students in their group
 - Then 15 minutes for students who prepared Ch. 3 to teach the other two students in their group
- Measuring:
 - Demographic questionnaire, including measures related to general preparedness
 - Perception survey to measure thoughts on lecture & reciprocal teaching activity

Also asked these questions about
paired teaching portion of class

Related to the lecture portion of today's class:

Did you attend the <u>lecture portion</u> of today's class? (please circle)	YES	NO
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	Not prepared	Somewhat prepared	Very prepared
How prepared did you feel for the <u>lecture portion</u> of today's class?	1	2	3

	None	Some	Most	All
How much of the reading for the <u>lecture portion</u> of today's class did you complete?	1	2	3	4

	Not motivated	Somewhat motivated	Very motivated
How motivated were you to participate during today's <u>lecture</u> ?	1	2	3

As a learner during the lecture portion of today's class...

	Never	Rarely	Sometimes	Frequently	Always
I was prepared to contribute to the group.	1	2	3	4	5
I stayed on task.	1	2	3	4	5
I listened to others.	1	2	3	4	5
I participated in discussion.	1	2	3	4	5
I encouraged others to participate.	1	2	3	4	5

As a learner during the lecture portion of today's class...

	Needs Improvement	Adequate	Outstanding
I had improved understanding of the material.	1	2	3

As a learner during the paired teaching portion of today's class...

	Never	Rarely	Sometimes	Frequently	Always
I was prepared to contribute to the group.	1	2	3	4	5
I stayed on task.	1	2	3	4	5
I listened to others.	1	2	3	4	5
I participated in discussion.	1	2	3	4	5
I encouraged others to participate.	1	2	3	4	5

As a learner during the paired teaching portion of today's class...

	Needs Improvement	Adequate	Outstanding
I had improved understanding of the topic taught to me by my peers.	1	2	3

As a teacher during the paired teaching portion of today's class...

	Never	Rarely	Sometimes	Frequently	Always
I was prepared to contribute to the group.	1	2	3	4	5
I stayed on task.	1	2	3	4	5
I listened to others.	1	2	3	4	5
I participated in discussion.	1	2	3	4	5
I encouraged others to participate.	1	2	3	4	5

As a teacher during the paired teaching portion of today's class...

	Needs Improvement	Adequate	Outstanding
I was adequately prepared for today's paired teaching activity.	1	2	3
I had improved understanding of the topic I taught.	1	2	3
I learned more about the topic because I taught it (i.e., compared to having listened to a lecture on the topic).	1	2	3
Teaching the material helped me learn the topic.	1	2	3

METHOD – NEXT CLASS QUIZ

- 5 multiple choice questions on each chapter

Positional bargaining is when

- a. People haggle and make concessions**
- b. People haggle over interests
- c. People avoid conflict
- d. People collaborate for mutual gain

The three problems with communication are all of these EXCEPT

- a. No direct talk is actually happening
- b. Listening has become impossible
- c. People seem to speak different languages and misunderstandings occur
- d. Emotions are too high**

RESULTS

- Do students learn more through peer instruction than traditional lecture?
- Yes, Ch. 1 quiz scores were significantly lower than the averaged Ch. 2 & 3 quiz scores, $t(42) = -3.81, p < .01$.
- But, quiz scores generally were quite low & it's possible the quiz questions were not equal in difficulty across Chapters

RESULTS

- Did students learn more from lecture, teaching, or peer learning?
 - In general, a repeated measures ANOVA showed there was a significant difference between these types of learning, $F(2, 42) = 5.25, p = .007$.
 - They learned equally from teaching (3.23/5) and peer learning (3.12/5)
 - Ch. 1 quiz score average was much lower (2.37/5)
 - But, Ch. 1 was always lectured on & chapters 2 & 3 were always presented through peer instruction

RESULTS

- Did the students as learners during lecture have an improved understanding of the materials relative to learners during peer instruction?
 - A paired samples t-test says no
 - Interesting because students do not perceive peer instruction led to “better” understanding, but quiz scores show otherwise

RESULTS

- Is peer instruction more likely to lead students to be more motivated to participate relative to students being motivated to participate in lecture?
 - A paired samples t-test says no
 - Could be more motivated → leading to higher quiz score! (but not realize the higher motivation)
 - However, individual correlations between motivation for a Ch. and the quiz score for that Ch. were not realized

RESULTS

- Were students more likely to read the paired instruction chapters compared to the lecture chapter?
- A paired samples t-test revealed a marginal difference here ($p = .073$), with paired instruction chapters more likely to have been read.
- So while students report not being more motivated, they actually might be → shown in their likelihood of reading prior to coming to class.

RESULTS

- Which were students more prepared for:
 - Lecture
 - Being a learner in peer instruction Most Prepared
 - Being a teaching in peer instruction Least Prepared
- A repeated measures ANOVA revealed a significant effect here, $F(2, 42) = 5.40, p < .01$.
- Never as prepared as one could be?
- Being prepared & motivated might be correlated

CONCLUSION

- Choice of instructional technique impacts students' preparedness for class, participation in class, and performance in class
- Meaningful learn experiences can be created that students do not “perceive” to be more educational but yet their quiz scores show otherwise
 - Limitations to this conclusion
- Studies that claim positive perception = great learning experience may not be as key as we'd like to think
 - We should instead structure learning experiences for students that are build on sound learning principles, not just on perception (& motivation)