USCOTS Research Spotlight Session

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Title for Session

Assessing Student Perceptions of Lecture Usefulness: Application of a Preliminary Scale

Abstract

We developed a short survey instrument to assess student perceptions of the usefulness of undergraduate statistics lectures. We then assessed classroom lectures to investigate how students perceived a variety of teaching methods. We discuss the relationship of the scale with test performance, qualitative feedback, and attitudes toward statistics.

Purpose of this Handout:

To Discuss the Purpose and Method of This Classroom Research Project in Narrative Form

*Data are still in the process of being collected and will be presented at the Conference

Genesis of this Project:

It has been posited that active learning strategies such as group work help to facilitate classroom learning and are often suggested as effective teaching strategies. My original goal of this project was to examine this assertion in an empirical manner, by presenting material in lecture using a variety of active learning teaching methods. This was my first time to teach the class and I was excited to experiment with differing methods to see what resonated with my teaching style as well as what was effective for student learning.

I quickly realized that it is challenging to creatively assess what students actually learn in lecture as separate from what they learn from other parts of the class such as homework, lab time (a small section of 15 students meeting weekly with another TA), and other extra-class activities such as individual or group studying. The preliminary question for me then became: how do we meaningfully capture students' perceptions of lecture usefulness? Do students perceive lectures differently depending on presentation method or are all lectures experienced as similar? How do these perceptions of lecture relate to performance outcome? To general attitudes toward statistics? These foundational questions guided the research process.

General Method:

I was the instructor for the second half of the semester for two sections of an undergraduate introduction to psychological statistics class with an enrollment of 45 students per section. I taught identical material to these two class sections twice a week for 1.25 hours a class. This arrangement enabled me to teach the same material using different methods to the two different sections.

Student feedback indicated that students found examples very helpful in understanding the material, so I focused on ways of utilizing examples during lecture that might aid in student learning. I explored how group work, the chalk-board, PowerPoint, and in class data generation could serve as vehicles for effectively working through examples. For instance, I would present material to class A and would then work an example on the board whereas for class B the students would work through an example in small groups after the same material had been

presented. The next class period I would swap conditions allowing for an examination within person across lecture as well as between classes to compare the specific teaching method.

Though the findings regarding the effectiveness of these various methods is interesting and instructive and will be presented, my focus became on how do we measure what is effective in the first place. As such, I generated a short nine item "Check on Lecture Learning" scale that attempted to assess student's perceptions of the lecture in helping them understand the three areas of statistical ***concepts***, ***computations***, and the ***general*** effectiveness of the lecture.

The scale was given at the end of class after different teaching methods had been employed and served as the "outcome" measure for the effectiveness of lecture. This measure may thus serve as a potential index of how individual student perceptions varied across lectures as well as may allow for the direct comparison of lectures and lecture topics.

As alluded to earlier, this measure picked up differences in class perceptions based on the teaching methods used and may serve as a useful tool to assess student perceptions of lecture usefulness. Preliminary evidence also suggests that this scale is related to class performance on exams. These findings along with the possible relationship between this lecture usefulness measure and *The Survey of Attitudes Toward Statistics* (SATS©, Schau, 2003) will be presented along with qualitative feedback provided by the students. The scale along with the subscale coding is presented below.

Quick Check on Learning Experience

These optional questions can give us an idea about what was and was not effective today in presenting the material. This is totally optional and will have NO impact on your grade and should take less than 2 minutes. Thank you for your time and feedback!

	Strongly Disagree			Neither disagree nor agree			Strongly agree
1. I feel that I learned something useful today.	1	2	3	4	5	6	7
2. Today's presentation helped me understand the new concepts introduced.	1	2	3	4	5	6	7
3. Today's presentation helped me to understand new statistical procedures.	1	2	3	4	5	6	7
4. Today's presentation helped me to think critically.	1	2	3	4	5	6	7
5. I feel confident that I could apply the computations presented today to future problems on the test and homework.	1	2	3	4	5	6	7
6. I feel comfortable with the computations covered today.	1	2	3	4	5	6	7
7. I want to see this style of presentation again in the future.	1	2	3	4	5	6	7
8. The new concepts presented today did not make any sense.	1	2	3	4	5	6	7
9. I could explain the basic concepts presented today to a friend.	1	2	3	4	5	6	7

General: Items 1, 4, 7 Procedures/Computations: 3, 5, 6 Conceptual: 2, 8r, 9 (with 8 being reversed)

Developed by Nathan R. Todd