

Turn Your Class Into a Research Lab

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Session Outline

1. Overview of three breakout sessions
2. **What is classroom research?** Panelists describe the problems that led them to conduct classroom research. What they learned from their research and how it impacted their teaching of statistics.
3. **Why do classroom research?** To address problems that arise in teaching our courses. What problems do we encounter in teaching statistics that would lead to classroom research studies? (Small group discussion)

In higher education, several terms that include “classroom research”, “action research”, and “the scholarship of teaching and learning”, with separate literatures, have been used to describe research centered on student learning. A model for this type of research is given by delMas, Garfield, and Chance (JSE, 1999) that includes the four steps:

1. **What is the problem?** What is not working in the class? What difficulties are students having learning a particular topic or learning from a particular type of instructional activity? The identification of the problem emerges from experience in the classroom, as the teacher observes students, reviews student work, and reflects on this information. As a clearer understanding of the problem emerges, the teacher may also refer to published research to better understand the problem, to see what has already been learned and what is suggested regarding this situation, and to understand what might be causing the difficulty.
2. **What technique can be used to address the learning problem?** A new instructional technique may be designed and implemented in class, a modification may be made to an existing technique, or alternative materials may be used, to help eliminate the learning problem.
3. **What type of evidence can be gathered to show whether the implementation is effective?** How will the teacher know if the new technique or materials are successful? What type of assessment data will be gathered? How will it be used and evaluated?
4. **What should be done next, based on what was learned?** Once a change has been made, and data have been gathered and used to evaluate the impact of the change, the situation is again appraised. Is there still a problem? Is there a need for further change?

How might the technique or materials be further modified to improve student learning?
How should new data be gathered and evaluated?

The session will explore this model, explore examples of classroom-based research and engage in dialogue with teachers on identification of the problems that need investigation by researchers.

Resources related to classroom research, action research, and the Scholarship of Teaching and Learning

delMas, R. C., Garfield, J., and Chance, B. L. (1999), "A Model of Classroom Research in Action: Developing Simulation Activities to Improve Students' Statistical Reasoning" *Journal of Statistics Education* [Online], 7(3) www.amstat.org/publications/jse/secure/v7n3/delmas.cfm

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