

Research Breakout Session #2 Research in Statistics Education: It's Not a Solo Sport

The goals of this session are (1) to increase participants' awareness of the value of (and frequency of) collaborations in conducting statistics education research, (2) to convey -- through personal descriptions -- several different models of collaboration (who is involved, how they work together, some benefits derived from the collaboration, and some obstacles that were overcome, etc.), and (3) to give the participants a chance to network and begin to find people with common interests who might be potential collaborators. To achieve these objectives and to keep the session interactive and contextualized, the format will include a short icebreaker to get people thinking about their own collaboration experiences and research interests, followed by a panel of 4 people representing different collaborations in statistics education research who will share their experiences, time for audience discussion with the panelists, and a meet-n-greet activity at the end to help people initiate potential research collaborations.

Research groups represented by session panelists

Institution: Carnegie Mellon University

Research Group Members: Marsha Lovett (panelist), Oded Meyer, Joel Greenhouse, Brian Junker, Rob Kass, Ken Koedinger

Description: StatTutor is an intelligent tutoring system developed at Carnegie Mellon that facilitates understanding of statistical ideas and analytical techniques by helping students construct useful knowledge representations and thereby develop effective problem-solving skills. It uses a specified outline of steps to follow in solving problems, or "scaffolding". StatTutor uses scaffolding and immediate feedback flexibly, tracking and responding to individual students as they navigate the learning environment.

Related Web Pages:

<http://www.cmu.edu/stattutor/people.html>

<http://www.psy.cmu.edu/LAPS/>

<http://www.causeweb.org/research/projects/carnegiemellon.php>

Institution: University of Massachusetts, Amherst

Research Group Members: Cliff Konold (panelist), Alexander Pollatsek, Arnie Well

Description: Our research initially focused on how adults reason about statistics and probability before receiving any formal instruction, and we used mostly in-depth clinical interviews in these studies. More recently, we have been focusing on younger students learning data analysis and how their understanding develops over instruction. We have been using various methods to study these, including group interviews and analysis of classroom interactions and student artifacts.

Related Web Pages:

<http://www.umass.edu/srri/serg/index.html>

<http://www.umass.edu/srri/serg/projects.html>

<http://www.causeweb.org/research/projects/umass.php>

Institution: University of Minnesota and California Polytechnic State University

Research Group Members: Joan Garfield (U of MN), Bob delMas (panelist, U of MN), Beth Chance (Cal Poly)

Description: Our research has focused on the use of simulation software to develop ideas related to statistical inference (e.g., sampling, sampling distributions, and confidence intervals), and ways to teach these concepts using the software. We are also interested in developing assessment tools and techniques to reveal students' statistical literacy, reasoning and thinking. We engage in collaborative classroom research, using students in our introductory statistics classes in our research studies.

Related Web Pages:

http://www.gen.umn.edu/research/stat_tools/

<http://www.gen.umn.edu/artist/>

<http://www.causeweb.org/research/projects/minnesota.php>

Institution: Central Michigan University, USA and Cyprus Ministry of Education, Nicosia, Cyprus

Research Group Members: Carl Lee (panelist, Central Michigan University)
Maria Meletiou-Mavrotheris (Cyprus Ministry of Education)

Description: Our research has focused on the progression of learning statistical concepts in an introductory statistics course using classroom-based research methodology. We are particularly interested in how students learn the concepts of variation, distributions and the difficulty occurs in the process of learning these concepts. More recently, we began a research study to investigate the retention of statistical concepts three months after completing their course work using problem posing research methodology.

Related Web Pages:

<http://www.cst.cmich.edu/users/lee1c/carlee/>

[http://www.stat.auckland.ac.nz/~iase/serj/SERJ1\(2\).pdf](http://www.stat.auckland.ac.nz/~iase/serj/SERJ1(2).pdf)