

Educational Assessment

- **developing and analyzing tools** intended to measure specific learning outcomes
- “tests” for research use across academic institutions; e.g., **intro data science**, intro **statistics**, **capstone assessment** just before graduation in statistics
- formative assessment; e.g., feedback for self-regulated learning and/or adaptive instruction

Lloyd, S. E., Beckman, M., Pearl, D., Passonneau, R., Li, Z., & Wang, Z. (2022). Foundations for AI-Assisted Formative Assessment Feedback for Short-Answer Tasks in Large-Enrollment Classes. In *Proceedings of the eleventh international conference on teaching statistics*. Rosario, Argentina.

Teaching and Learning

- **mechanisms to promote efficient learning** outcomes
- cognitive transfer, i.e., flexible/portable learning to be applied beyond the classroom
- cognitive load, i.e., stresses on student bandwidth during learning processes

Beckman, M. D., & delMas, R. C. (2018). Statistics students' identification of inferential model elements within contexts of their own invention. *ZDM Mathematics Education* 50(7). DOI: 10.1007/s11858-018-0986-5

Data Sciences Education

- exploring intersection of stat education & computing education
- studying **DS/CS topics introduced as learning objectives in statistics** curricula
- data literacy, data acumen, EDA for DS

Beckman, M. D., Cetinkaya-Rundel, M., Horton, N. J., Rundel, C. W., Sullivan, A. J., & Tackett, M. (2021). Implementing Version Control With Git and GitHub as a Learning Objective in Statistics and Data Science Courses. *Journal of Statistics and Data Science Education*, 29(1). <https://doi.org/10.1080/10691898.2020.1848485>

Matthew Beckman

Statistics & Data Science Education (SDSE) Research



mdblackman.github.io/2023-PSU-Stat-Research-Day

Curious about SDSE?

- Talk to me!
- SDSE Research Lab—Spring 23
Wed @ 9am in 421 Thomas Bldg
- CAUSE Research Satellite @ USCOTS—national SDSE conference at **Penn Stater Conference Center (5/31 to 6/1)**
- IASE catalog of PhD dissertations in statistics education
- Take a photo of QR code below, email me, drop by my office, etc

Contact:

mdblackman@psu.edu
421C Thomas Building
mdblackman.github.io



PennState