

Small is Beautiful {4ever} 2027 Workshop

Title: DESIGN, ANALYSIS, AND SYNTHESIS OF SINGLE-CASE EXPERIMENTS: A WORKSHOP FOR APPLIED RESEARCHERS

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Background and rationale

This full-day workshop will provide an overview on current state-of-the-art methodology in single-case experimental designs (SCEDs). The workshop may serve as a foundation for more advanced topics during the main conference. SCEDs are especially useful when faced with heterogeneity within a population (e.g., autism spectrum disorder) where it is difficult to obtain homogeneous samples for large group designs. SCEDs represent a rigorous approach to evaluating treatment efficacy. Typically, SCEDs examine pre- versus post-treatment performance within a small sample of participants. The adoption of evidence-based practice calls for rigorously implemented and properly analyzed SCED intervention studies.

Aim(s) and learning objectives

Initially, an overview on major design tactics will be presented including withdrawal, multiple-baseline, multiple-element, and combined designs. Participants will learn about designs for comparing multiple interventions and possible pitfalls. Participants will also understand the use of quality appraisal tools to guide planning and implementation of SCEDs.

The second part will discuss proper analysis procedures including visual and statistical techniques. Participants will understand the pros and cons of various regression- and non-regression-based approaches. Participants will be provided case-based data scenarios to practice the use of quantitative outcome metrics in addition to visual analysis.

The third part will cover the basics of combining multiple SCED studies in a meta-analysis. Simple regression as well as multi-level models for data aggregation will be introduced. Participants will practice meta-analytic procedures using open-source software packages.

Target audience and maximum number

The workshop targets applied researchers in education, disability, health sciences, psychology, and rehabilitation and can accommodate up to 50 participants.

Workshop format and interaction

The presenters will use a lecture format to introduce major concepts. Group activities will discuss data scenarios and apply SCED tactics to various research problems. Hands-on activities will allow to practice data-analytic techniques on participants' own laptops.

How participants will be involved

Using a discussion format, participants will be provided with content slides and examples for a variety of data scenarios. Additionally, participants will apply appraisal and risk-of-bias tools for evaluating, planning, and reporting SCED research. Further hands-on activities will provide participants with data sets and shiny applications (SingleCase Effect Size by Pustejovsky and MultiSCED by Van den Noortgate) to learn statistical analysis and aggregation "while doing".

Expected outcomes / take-home messages

After workshop completion applied researchers will have a solid understanding of SCED tactics, contemporary approaches to visual and statistical analysis, and most recent approaches to synthesize SCED research.

Conflict of interest disclosure

Oliver Wendt (University of Potsdam, Germany, Purdue University, USA, & University of Pretoria, South Africa)

Dr. Wendt is Professor and Chair of Cognitive and Emotional Disabilities at the University of Potsdam in Germany. He holds part-time appointments at Purdue University, USA, and the University of Pretoria, South Africa. He is a member of the American Educational Research Association, the American Speech-Language-Hearing Association, the Association for Behavior Analysis International, the International Society for Augmentative and Alternative Communication, and the International Society for Autism Research. Dr. Wendt serves as editor for the Journal of Physical and Developmental Disabilities, and the Journal of Speech, Language, and Hearing Research – Language Section. He has no potential conflicts of interest related to the content of this workshop.

Mariola Moeyaert (University at Albany, USA)

Dr. Moeyaert is an Associate Professor in the Division of Educational Psychology and Methodology at the University at Albany. Dr. Moeyaert successfully completed two Institute of Education Sciences (IES) funded grants related to analysis and meta-analysis of SCEDs, served as statistical consultant on more than 10 externally funded grants (e.g., IES, National Institutes of Health, Health Resources and Services Administration, and Foundation for Child Development) and is currently Primary Investigator on an IES grant related to causal mediation for SCEDs. Dr. Moeyaert was an instructor of the Training Institute on Single-Case Intervention Research Design and Analysis, also funded by the IES. She is a member of the American Educational Research Association, Associate Editor of Behavior Modification and Methodological Consulting Editor of the Journal of Experimental Education, Psychological Methods, and Educational Research Review. She has no potential conflicts of interest related to the content of this workshop.

Ralf Schlosser (Schlosser Consulting, Boston Children's Hospital, Northeastern University, USA, & University of Pretoria, South Africa)

Dr. Schlosser is Director of Schlosser Consulting LLC, Research Design Consultant for the Augmentative Communication Program at Boston Children's Hospital, and Professor Emeritus of Communication Sciences and Disorders at Northeastern University. He also holds an Extraordinary Professorship at the University of Pretoria. Ralf is a co-author of the German book "Kontrollierte Einzelfallstudien: Eine Alternative für die sonderpädagogische und klinische Forschung [Single case experimental designs: An alternative for special education and clinical research] (Hogrefe Publishers) and the lead author of "Appraisal of comparative single-case experimental designs for instructional interventions with non-reversible target behaviors: Introducing the CSCEDARS ("Cedars)". He has no potential conflicts of interests related to the content of this workshop.