



# The Stats Source: Newsworthy Notes from the Ed Stats SIG

## President's Column

Hello Educational Statisticians SIG members,

I hope that each of you is ready for the upcoming conference in Denver for the annual meeting of the American Educational Research Association. As importantly, I hope that you have almost completed all your research projects and submitted those papers to discussants!

Many thanks go to **Laura Stapleton**, our Program Chair, for organizing a wonderful program for the Educational Statisticians SIG. She had to learn about, handle and organize the new review panel system. Many thanks also go to each of you who served as proposal reviewers this year. Your feedback is of the utmost importance in terms of the final selection of sessions.

It is still the case that designation of a SIG's sessions is partly founded on the number of proposals that the SIG receives. So thanks to those of you who submitted proposals. Thanks also in advance to those of you who will serve as Chairs and Discussants of our sessions.

I'm delighted to announce that the SIG's nominations committee (consisting of Laura Stapleton, Ron Serlin, Dena Pastor and Debbie Hahs-Vaughn) have awarded the third annual Educational Statisticians' SIG service award to **Joel Levin**. Joel will give his invited talk at next year's (2011) Business Meeting in New Orleans. Last year's winner, **Ron Serlin** will give his invited address at this year's Business Meeting on Saturday, May 1<sup>st</sup> from 6:15-7:45 in the Colorado Convention Ctr, Rm 406. Do please join us!

I'm also delighted to announce that **Janet Holt** was elected to be the incoming Program Chair for the 2011 program. Do come to the business meeting to meet Janet and to congratulate her on her appointment.

The SIG's executive committee has accomplished a couple of administrative tasks. We submitted our by-laws to AERA and had them accepted (does that count as a publication?!). We will have these posted on the Educational Statisticians SIG's website.

Laura and I have also worked together to come up with a way to use some of the royalties from the book series edited by SIG members and generously donated by the books' editors to support Educational Statisticians SIG graduate students.

*President*  
**Tasha Beretvas**  
University of Texas

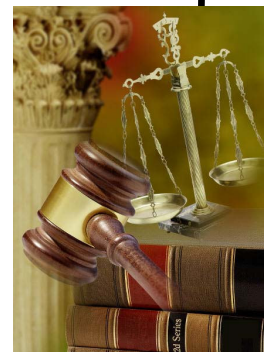
*Program Chair & President Elect*  
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University of Maryland-Baltimore County

*Secretary / Treasurer*  
**Josh Goodman**  
James Madison University

*Book Series Editor*  
**Ron Serlin**  
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*Newsletter Editors & Webmasters*  
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**Debbie Hahs-Vaughn**  
**Steve Sivo**  
**Lea Witte**  
University of Central Florida

*Members-at-Large & Awards Committee Members*  
**Rhonda Kowalchuck**  
Southern Illinois University  
**Bruno Zumbo**  
University of British Columbia



## President's Column *continued...*

(Many thanks thus to Ron Serlin, Greg Hancock, Ralph Mueller, Shlomo Sawilowsky, Betsy McCoach and Ann O'Connell!). **Graduate students** who are Educational Statisticians SIG members and who are **presenting authors** on papers accepted for presentation by our SIG can submit copies of their final paper to the SIG's nominations committee. These papers should be sent to the nominations committee chair (Laura Stapleton: [lstaplet@umbc.edu](mailto:lstaplet@umbc.edu)) by midnight PST on April 16<sup>th</sup>. The nominations committee will then select two graduate students who will be given their award at the SIG Business meeting. So I strongly encourage faculty to encourage your students to finish up their papers and forward them to Laura. We are open to discussing and modifying this process at this year's meeting.

Many thanks go to the newsletter editor and webmasters for their service throughout the year: **Debbie Hahs-Vaughn**, **Steve Sivo**, and **Lea Witta**. It's also a pleasure to have Haiyan Bai (also from the University of Central Florida) joining us in assisting with the newsletter and website.

Last, before I sign off, I just want to ask each of you to continue strengthening the Educational Statisticians SIG membership by encouraging your fellow educational statisticians to become members and to contribute to our SIG in the form of both research and service. It has been my pleasure serving the Educational Statisticians SIG as the Program Chair and President over the last three years. Thanks to each of you who has helped me with this role. I'm looking forward to seeing you in Denver!

Regards,

Tasha Beretvas  
The University of Texas at  
Austin





## A Note from the Program Chair

As you probably all will agree, time appears to be moving swiftly this year! In a few short weeks, many of us will be in Denver to enjoy some scholarly conversation, ideas, and research results (and, it being over the weekend, hopefully a little time for rest and relaxation).

I would like to take this opportunity to list the highlights of the Educational Statisticians SIG meetings during the conference (see next two pages).

As I stated in our last newsletter, given the topics listed on the program, I am confident that our SIG will enjoy a thought-provoking and educational time in Denver. We have distinguished researchers presenting and serving in both roles of discussants and chairs. Please review the on-line searchable program to build your schedule now, before the flurry of on-site conference activities prevents you from reviewing the schedule in detail.

Also note that this year the roundtable discussions will be different than that in prior years. The chair of the session is responsible for facilitating a conversation among the presenters regarding the commonalities across their papers and research. Roundtables might therefore serve as a very good opportunity for graduate students to become part of conversations among several researchers struggling with a particular issue.

Again, I specifically want to thank our review panel: Michael Cohen, Joshua Goodman, Debbie Hahs-Vaughn, Gregory Hancock, Michael Harwell, Janet Holt, Alan Klockars, Roy Levy, Sean Mulvenon, Ann O'Connell, Michael Seaman, Paul Vogt, Andrew White, and Tiffany Whittaker. Also, please note that the planning for the review panel for the 2011 is already underway. Our new program chair, Janet Holt, is leading the organization of that process.

Until Denver... (in the meantime, enjoy the spring weather and the opening weeks of baseball!)

Laura Stapleton

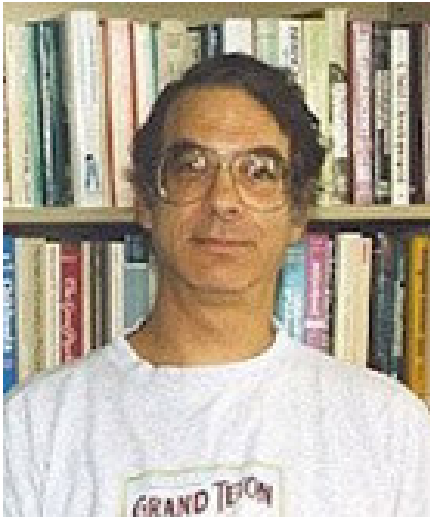
## AERA 2010 Ed Stats SIG Sessions: Saturday & Sunday

Saturday		
Poster Session	12:25-1:55pm	Colorado Convention Center, <u>Korbel Ballroom 3</u>
<ol style="list-style-type: none"> <li>1. <i>A new approach to merging data: Redefining longitudinal data in education</i></li> <li>2. <i>Building a statistics course on model-eliciting activities</i></li> </ol>		
Business Meeting	6:15-7:45pm	Colorado Convention Center, Room 406
<i>Fisher was Right! Invited address by 2009 Service Award Honoree</i>		
Several SIG Social!	8:30pm until ?	Local pizza venue (details being worked out by <u>Finbarr Sloan of the HLM SIG</u> )
Sunday		
Roundtable Session	10:35am-12:05pm	Colorado Convention Center, <u>Korbel Ballroom 2</u>
<ol style="list-style-type: none"> <li>1. <i>Developing a statistics teaching and beliefs survey</i></li> <li>2. <i>Evaluating statistical reasoning of college students in the social and health sciences with diagnostic assessment</i></li> <li>3. <i>The validation of an instrument to measure helplessness in learning statistics</i></li> </ol>		
Paper Session	2:15 - 3:45pm	Colorado Convention Center, Room 406
<ol style="list-style-type: none"> <li>1. <i>A meta-analysis of Monte Carlo results of the Q test of homogeneity</i></li> <li>2. <i>A Monte Carlo simulation of the robust rank-order test under various population symmetry conditions</i></li> <li>3. <i>Inverse normal transformations and the nonparametric Behrens-Fisher problem</i></li> <li>4. <i>The impact of selection procedures for non-normal covariates on the Type I error rate and power of ANCOVA</i></li> <li>5. <i>Simulating <u>univariate</u> and multivariate Burr distributions</i></li> </ol>		

## AERA 2010 Ed Stats SIG Sessions: Monday & Tuesday

Monday		
Roundtable Session	8:15 - 9:45am	Colorado Convention Center, <u>Korbel</u> Ballroom 2
<ol style="list-style-type: none"> <li>1. <i>Estimation of the standardized mean difference for repeated-measures designs</i></li> <li>2. <i>The ANOVA and ANCOVA designs under range restriction: When the sample is not random</i></li> <li>3. <i>The robustness of the t-test with different, non-normal distributions</i></li> </ol>		
Roundtable Session	12:25 - 1:55pm	Colorado Convention Center, Rooms 109, 111, 113
<ol style="list-style-type: none"> <li>1. <i>An empirical comparison of propensity score matching methods for reducing selection bias</i></li> <li>2. <i>Investigating the effect of mathematics self-efficacy on mathematics achievement using regression analysis for complex survey data</i></li> <li>3. <i>Multilevel classification modeling with empirical Bayesian cutoff points on dropout data</i></li> </ol>		
Paper Session	4:05 - 5:35pm	Colorado Convention Center, Room 406
<ol style="list-style-type: none"> <li>1. <i>Comparison of methods for meta-analytic structural equation modeling</i></li> <li>2. <i>Meta-analysis of <u>intraclass</u> correlation coefficients from multilevel models of educational achievement</i></li> <li>3. <i>Use of both multiple-group CFA and MIMIC model in a measurement invariance study</i></li> <li>4. <i>A <u>mixture</u> modeling approach to systematic measurement error</i></li> </ol>		
Tuesday		
Paper Session	8:15 - 9:45pm	Colorado Convention Center, Room 104
<ol style="list-style-type: none"> <li>1. <i>Analysis of variance: Do you know what your statistical software is actually doing?</i></li> <li>2. <i>Multiple comparison procedures revisited</i></li> <li>3. <i>Comparison of methods for estimating confidence intervals for eta and omega squared effect sizes</i></li> <li>4. <i>Assessing classification accuracy of clinical significance methods</i></li> <li>5. <i>Power and sample-size estimation in experimental designs</i></li> </ol>		





## Ed Stats SIG Featured Speaker: DR. RON SERLIN

Dr. Ron Serlin was selected as the second annual Educational Statisticians Service Award recipient.

We hope that you'll join us at the business meeting in Denver at which time Dr. Serlin will be the featured speaker.

## ***Statistical Simulation: Power Method Polynomials and Other Transformations***

**Author:**

Todd Headrick, Southern Illinois University-Carbondale

**Publisher:**

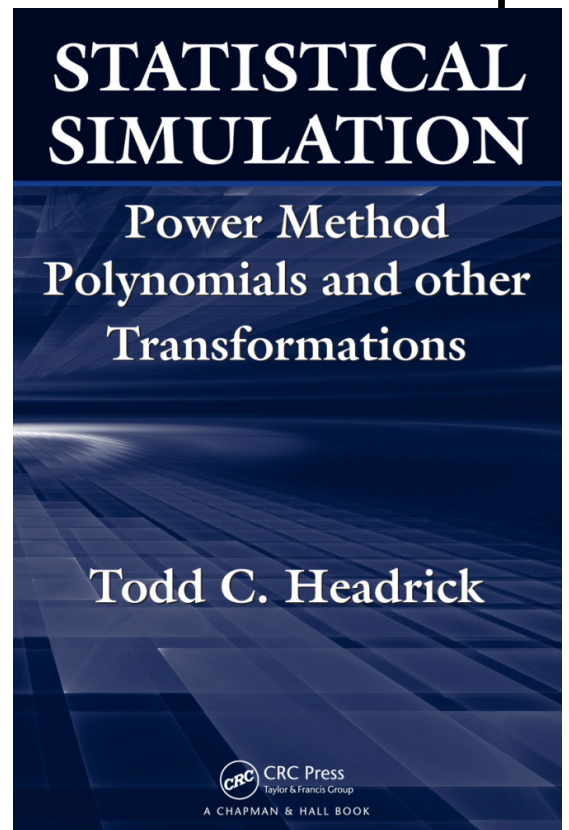
Chapman & Hall/CRC

**Release date:**

Fall 2009

The power method transformation is a popular technique that is used for simulating non-normal distributions often used in Monte Carlo or simulation studies, such as computer adaptive testing, hierarchical linear modeling, item response theory, logistic regression, and other univariate or multivariate nonparametric tests.

This book covers the theory underlying the power method as well as many applications associated with it. It presents a development of the theory that leads to a general framework for implementation. The text also provides many examples to demonstrate the procedure, along with Monte Carlo results to support the theory. The author includes a "Mathematica"(R) package for implementation of the procedure. The Tukey  $g$ -and- $h$  and generalized lambda distributions are also presented and discussed in the context of multivariate data generation.



## **DATIC 2010: Data Analysis Training Institute of Connecticut**

There will be four DATIC workshops offered during June 2010. Topics locations are:

### **Hierarchical Linear Modeling**

**Session A: June 14-18, 2010**

**Session B: June 21-25, 2010**

*Instructors:* D. Betsy McCoach & Ann A. O'Connell

*Web address:*

<http://davidakenny.net/datic/datic.hlm.htm>

Each HLM workshop covers basics and applications of multilevel modeling with extensions to more complex designs. Participants will learn how to analyze both organizational and longitudinal (growth curve) data using multilevel modeling and to interpret the results from their analyses. Although the workshop does not require any prior knowledge or experience with multilevel modeling, participants are expected to have a working knowledge of multiple regression as well as SPSS (or SAS). Analyses will be demonstrated using the software HLMv6. Instruction will consist of lectures, computer workshops, and individualized consultations. The workshop emphasizes practical applications and places minimal emphasis on statistical theory.

### **Structural Equation Modeling June 14-18, 2010**

*Instructors:* David A. Kenny & Stephanie Milan

*Web address:*

<http://davidakenny.net/datic/datic.sem.htm>

The workshop on Structural Equation Modeling covers basics of path analysis, confirmatory factor analysis, and latent variable modeling. Using AMOS Graphics, participants will learn how to build, evaluate, and revise a structural equation modeling. Although the workshop does not require any prior knowledge or experience with multilevel modeling, participants are expected to have a working knowledge of multiple regression, as well as SPSS (or SAS).

### **Dyadic Analysis June 21-25, 2010**

*Instructors:* David A. Kenny & Tessa V. West

*Web address:*

<http://davidakenny.net/datic/datic.dyad.htm>

The workshop on dyadic data analysis will focus on data where both members of a dyad are measured on the same set of variables. Among the topics to be covered are the measurement of nonindependence, the Actor-Partner Interdependence Model, the analysis of distinguishable and indistinguishable dyads, mediation and moderation of dyadic effects, and over-time analyses of dyadic data. The software package used in the workshop will be SPSS, but there will be discussion of other packages (e.g., HLM). Although the workshop does not require any prior knowledge or experience with multilevel modeling, participants are expected to have a working knowledge of multiple regression or analysis of variance, as well as SPSS (or SAS).

To register for any of these workshops please go to

<http://davidakenny.net/datic/datic.htm>



## Submissions Sought for the *Journal of Experimental Education*

You are invited to submit manuscripts to *The Journal of Experimental Education* (JXE). JXE publishes theoretical, laboratory, and classroom research studies that use the range of quantitative and qualitative methodologies.

Recent articles have explored the correlation between test preparation and performance, enhancing students' self-efficacy, the effects of peer collaboration among students, and arguments about statistical significance and effect size reporting. In recent issues, JXE has published examinations of statistical methodologies and editorial practices used in several educational research journals.

## CONFERENCE & SHORT COURSE: Advances in Longitudinal Methods in the Social and Behavioral Sciences

The Center for Integrated Latent Variable Research (CILVR) at the University of Maryland is pleased to announce an upcoming conference and associated pre-conference short course:

*June 17-18, 2010: Conference "Advances in Longitudinal Methods in the Social and Behavioral Sciences," with keynote speaker Patrick Curran*

A common and on-going challenge across research domains is to make meaningful inferences regarding the traits underlying observed but fallible response profiles of longitudinal data. Numerous statistical methods have been proposed to analyze such repeated measures data, including linear mixed effects models, multilevel models, hierarchical non/linear models, and latent growth curve modeling. While these basic models have been extended in several ways in

recent years, methodological progress must be sustained in order to keep up with the myriad of complex data analytic conditions often found in practice. To that end, this conference brings together quantitative methodologists to present new, state-of-the-art developments in longitudinal methods, and to point to the future of this critical branch of data analysis. This conference should appeal in scope and accessibility to applied researchers, academic researchers, and graduate students throughout the many disciplines of the social and behavioral sciences.

*June 16, 2010 -- Pre-conference short course: "Longitudinal Models," by Hanno Petras*

Dr. Petras will offer a one-day short course on longitudinal models (using the Mplus software). Dr. Petras will

illustrate a wide variety of longitudinal models (e.g., latent growth models, growth mixture models, latent transition models), showing participants the diverse and interesting research questions that apply to so many disciplines. This is also a great opportunity for some folks who want to "get up to speed" so as to get the most out of the two-day conference to follow. The workshop will be held on the College Park campus next to the conference room, and the cost will be \$75.

For more information about the conference and short course: <http://www.CILVR.umd.edu/Conference2010/Conference2010.html>

For more information about the Center for Integrated Latent Variable Research: <http://www.CILVR.umd.edu>



## The Reviewer's Guide to Quantitative Methods in the Social Sciences

### The Reviewer's Guide to Quantitative Methods in the Social Sciences

Edited by Gregory R. Hancock and Ralph O. Mueller

Routledge, 2010

*The Reviewer's Guide to Quantitative Methods in the Social Sciences* is designed for evaluators of research manuscripts and proposals in the social and behavioral sciences, and beyond. Its 31 uniquely structured chapters cover both traditional and emerging methods of quantitative data analysis, which neither junior nor veteran reviewers can be expected to know in detail. The book updates readers on each technique's key principles, appropriate usage, underlying assumptions, and limitations. It thereby assists reviewers to offer constructive commentary on works they evaluate, and also serves as an indispensable author's reference for preparing sound research manuscripts and proposals.

Comprehensive Coverage — Thirty-one chapters cover virtually all of the popular classic and emerging quantitative techniques, thus helping reviewers to evaluate a manuscript's methodological approach and helping researchers to design their own quantitative research.

Unique Chapter Format — For ease of use, all chapters follow the same structure.

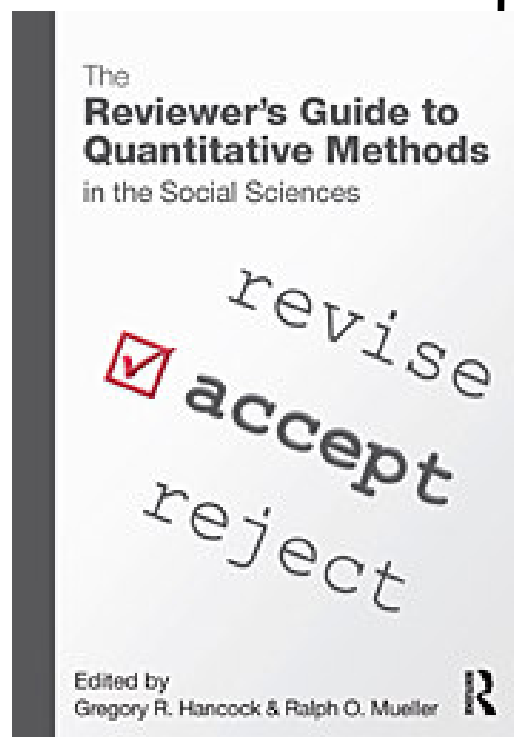
The opening page of each chapter defines and explains the purpose of that statistical method.

The next one or two pages provide a table listing specific numbered criteria that should be considered when evaluating and applying that methodological approach to data analysis.

The remainder of each chapter contains numbered sections corresponding to the criteria listed in the opening table. Each section explains the role and importance of that particular criterion.

Expert Chapter Authors — Chapters are written by methodological and applied scholars who are expert in the particular quantitative method being reviewed.

<http://www.routledgeeducation.com/books/The-Reviewers-Guide-to-Quantitative-Methods-in-the-Social-Sciences-isbn9780415965088>



# **Alternate Assessments Based on Alternate Achievement Standards: Policy, Practice and Potential**

*Edited by William D. Schafer, Ed.D., & Robert W. Lissitz, Ph.D.*

What really works in alternate assessment based on alternate achievement standards?

Every state is working to know the answer—both to comply with federal requirements for evaluating students with severe cognitive disabilities, and to ensure that all students reach their full potential. This comprehensive book is the first to gather today's best knowledge about alternate assessments so professionals can act quickly to shape the future of this rapidly developing field.

An urgently needed resource for assessment developers, researchers, policy makers, special education directors, and students in graduate-level courses in both special education and assessment, this book is a rigorous investigation of the challenges, recent successes, and key components of assessing alternate achievement standards.

Top assessment experts show readers

**What we know about alternate assessments.** Readers will start with the foundational knowledge they need for effective development and implementation. They'll learn how to determine which students should take alternate achievement standards assessments, what these assessments should measure, how to align assessments with state standards, and how to set standards for and evaluate the success of these unique assessments.

**What's working today in states across the country.** Diverse examples of programs from seven states—complete with insightful commentary from the experts behind the programs—give readers an inside look at approaches such as skills checklists, portfolios, and performance tasks. Includes in-depth information on program development and technical data.

**What we need to know going forward.** Today's most prominent experts come together to give readers clear direction for future efforts. Developers and evaluators will discover what new knowledge they should expand in the next few years, and they'll get specific take-away ideas they can use to ensure validity, reliability, and documented success in alternate assessments.

With this big-picture examination of one of the most critical new topics in education, researchers and practitioners will work together toward alternate assessments that accurately pinpoint the strengths and needs of students with severe cognitive disabilities—so their teachers can help improve academic outcomes for *all* students.

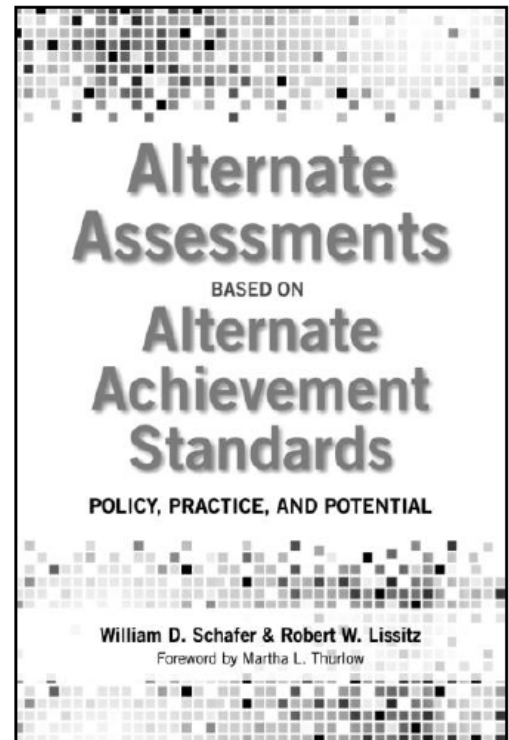
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## Ed Stats SIG

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Mark your  
calendars for a  
wonderful meeting  
in Denver in 2010!

We will soon be hosted from the AERA website! Until then, our temporary address is:

<http://homes.education.ucf.edu/16080/~ssivo/EDSTATS/Ed%20Stat%20Homepage.htm>

## Upcoming Conferences

American Educational Research Association (AERA)

[www.aera.net](http://www.aera.net)

April 30-May 4, 2010, Denver

Florida Educational Research Association Annual Meeting

[www.feraonline.org](http://www.feraonline.org)

November 17-20, 2010, Orlando



## AERA Fellowships & Grants Programs

Information on AERA's Fellowships and Grants Programs can be found at <http://www.aera.net/fellowships/?id=57>. From this site, details and related links for more information on the following programs can be accessed:

- AERA-AIR Fellows Program
- AERA-ETS Fellowship Program in Measurement
- Minority Fellowship Program in Education Research
- AERA Grants Program