

STERLING C. HILTON

306G MCKB

DEPARTMENT OF EDUCATIONAL LEADERSHIP & FOUNDATIONS

BRIGHAM YOUNG UNIVERSITY

PROVO, UTAH

801-422-6666 (tel.), 801-422-0196 (fax)

e-mail: Sterling_Hilton@byu.edu

EDUCATION

- 1996 **Doctor of Philosophy, Biostatistics**, John Hopkins University, Baltimore, MD
1990 **Master of Science, Statistics**, Brigham Young University, Provo, UT
1990 **Master of Arts, Political Science**, Brigham Young University, Provo, UT. Emphasis in Public Policy
1987 **Bachelor of Arts, Economics**, Brigham Young University, Provo, UT. Minors in Mathematics and Spanish
-

SCHOLARLY FOCUS

My primary scholarly focus is in the teaching and learning of mathematics and statistics. Current efforts in mathematics education focus on improving the capacity of K-12 school teachers to teach for mathematical understanding through professional development and system support. My current efforts in statistics education focus on the first course, primarily at the university level. My research in mathematics and statistics education are linked by similar reform movements in both areas. These reform movements can be characterized by a shift in teaching and learning away from rote calculations towards meaningful understandings of concepts, procedures, and representations.

PROFESSIONAL WORK EXPERIENCE

- 2003 – present **Associate Professor**, Department of Educational Leadership and Foundations, Brigham Young University, Provo, UT
2009 – 2015 **Chair**, Dept. of Educational Leadership and Foundations, Brigham Young University, Provo, UT
2002 – 2003 **Associate Professor**, Department of Statistics, Brigham Young University, Provo, UT
1996 – 2002 **Assistant Professor**, Department of Statistics, Brigham Young University, Provo, UT
1991 – 1996 **Consulting Statistician**, Dana Center for Preventive Ophthalmology, John Hopkins University, Baltimore, MD
1991 – 1995 **Consulting Statistician**, Center for Nursing Research, John Hopkins University, Baltimore, MD

PROFESSIONAL RECOGNITIONS AND AWARDS

- 2017 Brigham Award, university award that recognizes five individuals who demonstrate consistent qualities of selflessness, charity, and service to others, Brigham Young University, Provo, UT
2017 Nancy Peery Marriott Outstanding Mentor Award, McKay School of Education at Brigham Young University, Provo, UT
2008 David O. McKay Fellowship, University Fellowship that supports the improvement of teaching and teacher education, Brigham Young University, Provo, UT
2006 – 2013 Member, Research Advisory Board, Consortium for the Advancement of Undergraduate Statistics Education
2005 – 2010 Member, Program Planning Committee, United States Conference on Teaching Statistics
2004 – 2007 Publications Officer, Statistical Education Section of American Statistical Association
2002 – 2013 Associate Editor and Member, Consortium for the Advancement of Undergraduate Statistics Education
2005 – 2007 Member, NSF/ASA Statistical Methodology in Education Research Project, Washington, DC
2002 – 2003 Teaching and Learning with Technology Fellow, Brigham Young University, Provo, UT
1999 Teacher of the Year Award, Mu Sigma Rho Honor Society at Brigham Young University, Provo, UT
1998 Teacher of the Year Award, Department of Statistics, Brigham Young University, Provo, UT
1995 Helen Abbey Teaching Award, Dept. of Biostatistics, Johns Hopkins University, Baltimore, MD

PROFESSIONAL MEMBERSHIPS AND HONOR SOCIETIES

American Statistical Association

International Association for Statistics Education

Phi Kappa Phi (national honor society)

Mu Sigma Rho (statistics honor society)

PEER-REVIEWED PUBLICATIONS

1. Farnsworth S, Hallam, PR, **Hilton SC**. "Principal Learning-Centered Leadership and Faculty Trust in the Principal." *NASSP Bulletin*, 2019; 103(3): 209-228.
2. Hendrickson SJ, Kuehl B, **Hilton SC**. "Connecting the Dots: Building Procedural Fluency." *Mathematics Teaching in the Middle School*, NCTM, 2018; 24(2), 104-110.
3. Mitchell UH, Johnson AW, Vehrs PR, Feland JB, **Hilton SC**. "Performance on the Functional Movement Screen in older active adults." *Journal of Sport and Health Science*, 2016; 5: 116-122.
4. Kemppainen RP, **Hilton SC**, Rannut U. "Ethnic Identification and School Language of Russian-Speaking Students in Estonia." *Journal of Language, Identity & Education*, 2015; 14(5), 336-353.
5. Visca A., Bishop CT, **Hilton SC**, Hudson VM. "Oral Reduced L-Glutathione Improves Growth in Pediatric Cystic Fibrosis Patients: A Randomized Clinical Trial." *Journal of Pediatric Gastroenterology and Nutrition*, 2015; 60(6): 802-810.
6. Mitchell UH, **Hilton SC**. "Change of International Restless Legs Syndrome Study Group Rating Scale subscales with Treatment and Placebo – a Pilot Study." *Journal of Parkinsonism and Restless Legs Syndrome*, 2014; 4:1-7.
7. Mitchell UH, Myrer WJ, Johnson AW, **Hilton SC**. "Restless Legs Syndrome and Near-Infrared Light Treatment: an alternative treatment option." *Physiotherapy Theory and Practice*, 2011; 27(5): 345-351.
8. Hendrickson S, **Hilton SC**, Bahr D. "The Comprehensive Mathematics Instruction (CMI) Framework: A new lens for examining teaching and learning in the mathematics classroom." *Impact*, 2010; 11:13-16.
9. Mitchell, UH, Myrer W, Hopkins T, Hunter I, Feland B, **Hilton SC**. "Neurophysiological Reflex Mechanisms do not contribute to PNF Stretches." *Journal of Sport Rehabilitation*, 2009; 18:343-357.
10. Dearden KA, **Hilton SC**, Bentley M, Caulfield L, Wilde C, Bich HP, Marsh D. "Caregiver verbal encouragement increases food acceptance among Vietnamese toddlers." *Journal of Nutrition*, 2009; 139(7):1387-1392.
11. Visca A, Clark B, **Hilton SC**, Hudson VM. "Improvement in clinical markers in CF patients using a reduced glutathione regimen." *Journal of Cystic Fibrosis*, 2008; 7(5):433-436.
12. Hendrickson S, **Hilton SC**, Bahr D. "The Comprehensive Mathematics Instruction (CMI) framework: A lens for examining teaching and learning in the mathematics classroom." *Utah Mathematics Teacher*, 2008; 1:44-52.
13. Layne CM, Warren JS, **Hilton SC**, Lin D, Borrowman G, Fulton J, Katalinski R, Pasalic H, Pasalic A, Saltzman WR, Pynoos RS. "Developing Theories and Measures of Vulnerability and Resilience Processes in War-Related Contexts: An Application with Bosnian Adolescents and Their Primary Caregivers." 2008. Adolescents and war: How youth deal with political violence, Barber BK (Ed.), New York: Oxford University Press.
14. Kemppainen RP, Ferrin SE, Hite SJ, **Hilton SC**. "Sociocultural Aspects of Russian-Speaking Parents' Choice of Language of Instruction for their Children in Estonia." *Comparative Education Review*, 2008; 52(1): 93-120.
15. Mitchell, UH, Myrer JW, Hopkins JT, Hunter I, Feland JB, **Hilton SC**. "Acute Stretch Perception Alteration Contributes to the Success of the PNF 'Contract-Relax' Stretch." *Journal of Sport Rehabilitation*, 2007, 16(2): 85-92.
16. Mitchell, UH, Myrer JW, Hopkins JT, Hunter I, Feland JB, **Hilton SC**. "Reciprocal inhibition, successive inhibition, autogenic inhibition, or stretch perception alteration: why do PNF stretches work? (Abstract) *Proceedings of the American College of Sports Medicine 53rd Annual Meeting*, 2006.
17. Hite JM, Williams EJ, **Hilton SC**, Baugh, S. "The role of administrator characteristics on perceptions of innovativeness among a network of public school administrators." *Education and Urban Society*, 2006; 38(2): 160-187.
18. Bishop C, Hudson VM, **Hilton SC**, Wilde C. "A pilot study of the effect of inhaled, buffered, reduced glutathione on the clinical status of patients with cystic fibrosis." *Chest*, 2005, 127(1):308-317.
19. Ricard MD, Ugrinowitsch C, Parcell AC, **Hilton S**, Rubley MD, Sawyer R, Poole CR. "Effects of rate of force development on EMG amplitude and frequency." *Int J Sports Med*. Published online July 30, 2004; DOI: 10.1055/s-2004-817856. (<http://www.thieme-connect.com/ejournals/abstract/sportsmed/doi/10.1055/s-2004-817856>)
20. **Hilton SC**, Schau C, Olsen JA. "Survey of Attitudes Towards Statistics: factor structure invariance by gender and by administration time." *Structural Equation Modeling: A Multidisciplinary Journal*, 2004; 11(1):92-109.

21. Anderson GT, **Hilton SC**, Wouden-Miller M. "A gender comparison of the cooperation of 4-year-old children in classroom activity centers." *Early Education and Development*, 2003; 14(4):441-451.
22. Merrill RM, **Hilton SC**, Daniels M. Impact of the LDS church's health doctrine on deaths from diseases and conditions attributed to cigarette smoking. *Annals of Epidemiology*, 2003; 13:704-711.
23. Merrill RM, Wiggins CL, **Hilton SC**, Allen E. Disease-specific survival among prostate cancer patients in Utah according to religion and religiosity. *Utah's Health: An Annual Review*, 2003; 9:16-21.
24. Merrill RM, **Hilton SC**, Wiggins CL, Sturgeon JD. "Toward a better understanding of the comparatively high prostate cancer incidence rates in Utah." *BMC Cancer*, 2003; 3:14.
25. **Hilton SC**, Fellingham GW, Lyon JL. "Suicide rates and religious commitment in young adult males in Utah." *American Journal of Epidemiology*, 2002; 155:413-419.
26. **Hilton SC**, Christensen HB. "Evaluating the impact of multimedia lectures on student learning and attitudes." *Proceedings of ICOTS-6, The Sixth International Conference on Teaching Statistics*, 2002.
27. DiPietro JA, **Hilton SC**, Hawkins M, Costigan KA, Pressman EK. "Maternal stress and affect influence fetal neurobehavioral development." *Developmental Psychology*, 2002; 38(5):659-68.
28. **Hilton SC**, Grimshaw SD, Anderson GT. "Statistics in preschool." *The American Statistician*, 2001; 55:332-336.
29. **Hilton SC**, Merrill RM, Sturgeon JD. "Comparison of causes of death during 1994-1998 between LDS and non-LDS in Utah." *Utah's Health: An Annual Review*, 2001; 7:39-49.
30. DiPietro JA, Costigan KA, **Hilton SC**, Pressman EK. "Effects of socioeconomic status and psychosocial stress on the development of the fetus." *Annals New York Academy of Sciences*, 1999; p. 896.
31. Hill MN, Bone LR, **Hilton SC**, Roary MC, Kelen GD, Levine D. (1999). "A clinical trial to improve high blood pressure care in young urban black men: recruitment, follow-up and outcomes." *American Journal of Hypertension*, 1999; 12:548-554.
32. Hardy JB, Shapiro S, Astone NM, Miller TL, Brooks-Gunn J, **Hilton SC**. "Adolescent childbearing revisited: the age of inner-city mothers at delivery is a determinant of their children's self-sufficiency at age 27 to 33." *Pediatrics*, 1997; 100:802-809.
33. **Hilton SC**, Katz J, and Zeger S. "Classifying visual field data." *Statistics in Medicine*, 1996; 15:1349-1364.
34. DiPietro J, Hodgson D, Costigan K, **Hilton SC**, Johnson TR. "Development of fetal movement-fetal heart rate coupling from 20 weeks through term." *Early Human Development*, 1996; 44:139-151.
35. DiPietro J, Hodgson D, Costigan K, **Hilton SC**, Johnson, TR. "Fetal neurobehavioral development." *Child Development*, 1996; 67:2553-2567.
36. Hill MN, Feldman HI, **Hilton SC**, Holecheck MS, Ylitalo MS, Benedict GW. "Risk of foot complications in long-term diabetic patients with and without end-stage renal disease: a preliminary study." *American Nephrology Nurses' Association Journal*, 1996; 23:381-386.
37. Varma R, **Hilton SC**, Tielsch JM, Katz J, Quigley HA, Sommer A. "Neural rim area declines with increased intraocular pressure in urban Americans." *Archives of Ophthalmology*, 1995; 113:1001-1005.
38. Varma R, Tielsch JM, Quigley HA, **Hilton SC**, Katz J, Spaeth GL, Sommer A. "Race-, age-, gender-, and refractive error-related differences in the normal optic disc." *Archives of Ophthalmology*, 1994; 112:1068-1076.

CREATIVE WORKS

1. Working group on Statistics in Mathematics Education Research (**Hilton SC** member). "Using Statistics Effectively in Mathematics Education Research." Report from a series of workshops. American Statistical Association, 2007.
2. Williams EJ, Matthews LJ, **Hilton SC**, Stewart C. "Learning Community Culture Indicator." Survey instrument measuring 10 domains of professional learning communities. 2007.

OTHER PUBLICATIONS

1. **Hilton SC**, Kaplan J, Harrell L, Hooks T (2008). "Collaborative Projects in Statistics Education Research." *2008 Proceedings of Joint Statistical Meetings*.
2. **Hilton SC**, Christensen HB, Collings BJ, Hadfield K, Schaalje B, Tolley DH (1999). "A randomized, controlled experiment to assess technological innovations in the classroom on student outcomes: an overview of a clinical trial in education." 1999 ASA Section Proceedings: Statistical Education.
3. **Hilton SC** (1997). "How can we teach the law of the fast to our children so that their fast become a time of maximum spiritual growth and benefit?" *Ensign*, 1:66-67.

PRESENTATIONS

Invited

1. "Creating Sustainable Mathematics Reform by Training Administrative Teams to be Learning Centered Leaders" UCTM Leadership Conference, Salt Lake City, UT, October 2018. Presented with Berg N.

2. "A Conceptual Framework for Statistics Education Research," United States Conference on Teaching Statistics, Raleigh-Durham, North Carolina, May 2011. Presented with Stohl, HL and Enders, F.
3. "Comprehensive Mathematics Instruction (CMI): Partnering to Improve Teaching and Learning," McKay School of Education Cluff Lecture Symposia, BYU, Provo, UT, March 2011.
4. "The Comprehensive Mathematics Instruction (CMI) Framework: A New Lens for Examining Teaching and Learning," Dept. of Mathematics and Statistics, Portland State University, February 2011.
5. "An Overview of CAUSE-sponsored Research Clusters," Joint Statistical Meetings, Vancouver, British Columbia, Canada, August 2010.
6. "The Comprehensive Mathematics Instruction (CMI) Framework: A New Lens for Examining Teaching and Learning," Annual Conference of the Association of Mathematics Teacher Educators, Irvine, CA, January 2010. Presented with Bahr, D and Hendrickson, S.
7. "Making Research Relevant: Planting Seeds for Future Research in Statistics Education," United States Conference on Teaching Statistics, Columbus, OH, June 2009. Presented with Enders, F.
8. "Collaborative Projects in Statistics Education Research," Joint Statistical Meetings, Denver, CO, August 2008.
9. "The Joys and Challenges of Collaboration: Reflections on the CITES Math Initiative." Alliances for the Strength of Youth, BYU, Provo, UT, March 2008.
10. "What can we learn from quantitative data in statistics education research?" USCOTS II, Columbus, OH, May 2007.
11. "Using statistics effectively in statistics education research." CAUSE webinar, January 2007.
12. "How did a nice statistician like you end up doing statistics education research?" Joint Statistical Meetings, Seattle, WA, August 2006.
13. "Classroom research: A clinical trials approach." United States Conference on Teaching Statistics, Columbus, OH, May 2005.
14. "Comprehensive Mathematics Instruction: Designing a pilot study." Statistics in Mathematics Education Research Workshop, Washington, DC, September 2005.
15. "Using technology to teach variability." Beyond the Formula Conference, Rochester, NY, July 2003.
16. "Teaching statistics using technology: our toolbox runneth over." Beyond the Formula Conference, Rochester, NY, July 2003.
17. "Evaluating the impact of multimedia lectures on student learning and attitudes." International Conference on Teaching Statistics, Durban, South Africa, July 2002.
18. "Assessment and evaluation of student performance in statistics." Midwest Conference on Teaching Statistics, Oshkosh, WI, June 1999.
19. "Models for multivariate, longitudinal data: An application to repeated visual field tests." Biometrics ENAR Meetings, Pittsburgh, PA, March 1998.
20. "A regression model for longitudinal, multivariate vectors of continuous responses." Utah Chapter ASA Meeting, Salt Lake City, UT, March 1998.
21. "Measuring intervention effects in a heterogeneous population." Joint Statistical Meetings, Anaheim, CA, August 1990.

Contributed

1. "Developing Conceptual and Representational Understanding of Integers and Integer Operations," National Council of Teachers of Mathematics, Regional Conference in Salt Lake City, UT, October 2019. Presented with Berg, N.
2. "Collective Unit Planning: A Way to Promote Professionalism and Quality Practice in the Classroom," National Council of Teachers of Mathematics, Regional Conference in Salt Lake City, UT, October 2019. Presented with Berg, N.
3. "CPR for the Common Core: Using the Comprehensive Mathematics Instruction (CMI) Framework to Unpack Standards Across a Learning Cycle," National Conference of the National Council of Supervisors of Mathematics, Washington, DC, April 2018. Presented with Hendrickson, SJ.
4. "A Framework for Thinking through a Unit: Implications for Tasks, Instructional Practices and Student Outcomes," National Conference of the National Council of Supervisors of Mathematics, San Antonio, TX, April, 2017. Presented with Hendrickson, SJ.
5. "A Framework for Building Procedural Fluency on a Foundation of Conceptual Understanding," National Conference of the National Council of Supervisors of Mathematics, Oakland, CA, April 2016. Presented with Hendrickson, SJ.
6. "Statistics and Math: Do introductory statistics students differentiate?" Joint Statistical Meetings, Minneapolis, MN, August 2005.

7. "Towards an understanding of student attitudes towards statistics," Joint Statistical Meetings, San Francisco, CA, August 2003.
8. "Results from a clinical trial: evaluating the effect of multimedia presentations on student learning and attitudes," Joint Statistical Meetings, New York, NY, August 2002.
9. "Response patterns for e-mail vs phone surveys in a post-course evaluation of introductory statistics students' attitudes and knowledge," Joint Statistical Meetings, Indianapolis, IN, August 2000.
10. "A randomized controlled experiment to assess technological innovations in the classroom on student outcomes: an overview of a clinical trial in education," Joint Statistical Meetings, Baltimore, MD, August 1999.
11. "An overview of a clinical trial in education with preliminary results from the pilot phase of the trial," Midwest Conference on Teaching Statistics, Oshkosh, WI, June 1999.
12. "The BYU Statistics Department's Learning Research Initiative," BYU Statistics Department Seminar Series, Provo, UT, October 1998.
13. "Improving statistical education using a randomized experiment," International Conference on Teaching Statistics V, Singapore, June 1998.
14. "A regression model for longitudinal, multivariate vectors of continuous responses," Joint Statistical Meetings, Anaheim, CA, August 1997.
15. "On visual field data," Biometrics ENAR Meetings, Cleveland, OH, April 1994.
16. "Testing the curve-squaring hypothesis," Joint Statistical Meetings, Washington, D.C. August 1989.

SPONSORED RESEARCH

1. Principal Investigator for "Comprehensive Mathematics Instruction (CMI): Sustaining Improvement." U.S. Dept. of Education's Math Science Partnership through the Utah State Office of Education, 2015-2017; \$493,917.
2. Principal Investigator for "Comprehensive Mathematics Instruction (CMI) Scale-up and Sustainability." U.S. Dept. of Education's Math Science Partnership through the Utah State Office of Education, 2012-2015; \$655,569.
3. Principal Investigator for "Comprehensive Mathematics Instruction." U.S. Dept. of Education's Math Science Partnership through the Utah State Office of Education, 2009-2012; \$652,000.
4. Principal Investigator for "Improving Elementary Math Instruction for All." U.S. Dept. of Education's Math Science Partnership through the Utah State Office of Education, 2006-2009; \$556,319.
5. "CITES Math Initiative." Utah State Office of Education, 2004; \$35,000.

REVIEWER

1. *Mathematical Thinking and Learning*, 2019
2. *Health Affairs*, 2019
3. *Proceedings of International Conference on Teaching Statistics 9*, 2013
4. National Science Foundation, Discovery Research K-12 program, 2012-13
5. *Journal for the Scientific Study of Religion*, 2008