

DR. MILO A. SCHIELD

Synergistic Activities:

Dr. Schield is the Director of the W. M. Keck Statistical Literacy project – a project “to develop statistical literacy as an interdisciplinary curriculum in the liberal arts.” He is the Vice President of the National Numeracy Network (NNN), the US Coordinator of the International Statistical Literacy project (ISLP), an elected member of the International Statistical Institute (ISI) and webmaster of www.StatLit.org.

He is a tenured professor in Business Administration at Augsburg College with a Ph.D. in Space Physics (Rice University). He has been chair of the Business Department: the largest department at Augsburg.

He has taught traditional statistics at the undergraduate level for over 20 years; he has taught critical thinking at the undergraduate level for 10 years and at the graduate level for two; he has taught statistical literacy for over 10 years.

CONFERENCES: Dr. Schield has organized sessions and given talks on statistical literacy at the last thirteen national meetings of the American Statistical Association. Speakers have included Dr. Donald Rubin (Harvard), Dr. Joel Best, author of *Damned Lies and Statistics*, Joe Abramson, author of *Making Sense of Data*, Nicholas Eberstadt, author of *The Tyranny of Numbers*, Jessica Utts, author of *Seeing Through Statistics*, Robyn Dawes, author of *Everyday Irrationality*, Vic Cohen, author of *News and Numbers*, Tom Wonnacott, author of numerous statistics textbooks and Jane Miller, author of *The Chicago Guide to Writing about Numbers*. He also organized a session on Observational Studies and Multivariate Thinking at the International Statistical Institute (ISI) conference in Lisbon with Dr. Donald Rubin, Sir David Cox and Nanny Wermuth as speakers.

TALKS: He has given over 50 papers (over 100 talks) on statistical literacy in 15 countries on six continents. In the US, he gave the keynote address at a conference sponsored by Project Kaleidoscope (PKAL). He has given talks at Making Statistics More Effective in Schools of Business (MSMESB), the Association of Public Data Users (APDU), Mathematical Association of America (MAA), the American Mathematics Association of Two Year Colleges (AMATYC), the International Association of Social Science Information Services and Technology (IASSIST) and the US Department of the Census and the Bureau of Labor Statistics. Internationally, he has given talks at ICOTS (Singapore, South Africa, Brazil and Slovenia), ICME (Tokyo and Copenhagen), ISI/ISE (Australia and Portugal), and IASE (Sweden). He has given invited talks in China, England, Scotland and Wales.

RECOGNITION: In his book, *More Damned Lies and Statistics*, author Joel Best titled the last chapter, Toward Statistical Literacy. After noting the many problems facing this movement, he said, “*Despite these obstacles, a small educational movement advocating statistical literacy has emerged. Professor Milo Schield, Director of the W. M. Keck Statistical Literacy Project at Augsburg College in Minneapolis, is the movement’s leading voice.*”

Professional Preparation:

Iowa State University	Physics major; economics minor	B.S. 1962
University of Illinois	Physics major	M.S. 1964
Rice University	Space Physics	Ph.D., 1968

Appointments:

Augsburg College	Department of Business Administration	1985-present
St. Paul Companies	Senior Operations Researcher	1978-1985
Fox and Co., CPA	Senior Consultant	1975-1978
Bantam Data, Inc.	President	1972-1975
Schild Stock Service, Inc.	President	1971-1972
University of Iowa	Instructor, Physics Department	1968-1971

STATISTICAL PAPERS

1. Schield, Milo (1995). Correlation, Determination and Causation in Introductory Statistics, 1995 *American Statistical Association Proceedings of Section on Statistical Education*, pp. 189-194. See www.StatLit.org/pdf/1995SchieldASA.pdf.
2. Schield, Milo (1996). Using Bayesian Inference in Classical Hypothesis Testing, 1996 *American Statistical Association Proceedings of Section on Statistical Education*, pp. 274-279. See www.StatLit.org/pdf/1996SchieldASA.pdf.
3. Schield, Milo (1997). Interpreting Statistical Confidence, 1997 *American Statistical Association Proceedings of Section on Statistical Education*, pp. 137-142. See www.StatLit.org/pdf/1997SchieldASA.pdf.
4. Schield, Milo (1998a). Using Bayesian Strength of Belief to Teach Classical Statistics, 1998 International Conference on Teaching Statistics (ICOTS-5). See www.StatLit.org/1998SchieldICOTS.pdf.
5. Schield, Milo (1998b). Statistical Literacy and Evidential Statistics, 1998 *American Statistical Association Proceedings of Section on Statistical Education*, pp. 187-192. See www.StatLit.org/pdf/1998SchieldASA.pdf.
6. Schield, Milo (1999a). Statistical Literacy: Thinking Critically About Statistics, 1999 *APDU Of Significance*. Vol 1, No 1. P. 15-20. See www.StatLit.org/pdf/1999SchieldAPDU.pdf.
7. Schield, Milo (1999b). Common Errors in Forming Arithmetic Comparisons, 1999 *APDU Of Significance*, pp. 47-48. See www.StatLit.org/pdf/1999SchieldAPDU2.pdf.
8. Schield, Milo (1999c). Simpson's Paradox and Cornfield's Conditions, 1999 *American Statistical Association Proceedings of Section on Statistical Education*, pp. 106-111. See www.StatLit.org/pdf/1999SchieldASA.pdf.
9. Schield, Milo (2000a). *Statistical Literacy and Mathematical Reasoning*. International Conference on Mathematics Education (ICME-9), Tokyo. See www.StatLit.org/pdf/2000SchieldICME.pdf.
10. Schield, Milo (2000b). Statistical Literacy: Describing and Comparing Rates and Percentages. 2000 *American Statistical Association Proceedings of Section on Statistical Education*, pp. 76-81. See www.StatLit.org/pdf/2000SchieldASA.pdf.
11. Schield, Milo (2001). Describing Rates and Percentages in Tables, 2001 *Business of Communications*. See www.StatLit.org/pdf/2001SchieldBusOfComm.pdf.
12. Schield, Milo (2001). Statistical Literacy: Reading Tables of Rates and Percentages, 2001 *American Statistical Association Proceedings of Section on Statistical Education*, [No pages numbers given]. See www.StatLit.org/pdf/2001SchieldASA.pdf.
13. Schield, Milo (2002). Three Kinds of Statistical Literacy, International Conference on Teaching Statistics (ICOTS-6). See www.StatLit.org/pdf/2002SchieldICOTS.pdf.
14. Schield, Milo and Thomas Burnham (2002). Algebraic Relations between Relative Risk, Phi and Measures of Necessity and Sufficiency in 2x2 Tables. 2002 *American Statistical Association Proceedings of Section on Statistical Education*. [CD-ROM], 3089 - 3094. See www.StatLit.org/pdf/2002SchieldBurnhamASA.pdf.

15. Schield, Milo and Thomas Burnham (2003). Confounder-induced Spuriousity and Reversal: Algebraic Conditions for Binary Data Using a Non-Interactive Model. *2003 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM], 3690 - 3697. See www.StatLit.org/pdf/2003SchieldBurnhamASA.pdf.
16. Schield, Milo and Thomas Burnham (2004). Confounder Resistance and Confounder Intervals for a Binary Confounder. *2004 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM], 2781 - 2788. See www.StatLit.org/pdf/2004SchieldBurnhamASA.pdf.
17. Schield, Milo (2004a). Statistical Literacy and Liberal Education at Augsburg College. *Peer Review*, Sept. 2004, 7-14. American Association of Colleges and Universities (AACU). See www.StatLit.org/pdf/2004SchieldAACU.pdf.
18. Schield, Milo (2004b). *Statistical Literacy Curriculum Design*. IASE Curricular Development in Statistics Education Roundtable, pp. 54-74. See www.StatLit.org/pdf/2004SchieldIASE.pdf. or www.stat.auckland.ac.nz/~iase/publications/rt04/2.4_Schield.pdf.
19. Schield, Milo (2004c). *Three Graphs to Promote Statistical Literacy*. International Conference on Mathematics Education (ICME-10). See www.StatLit.org/pdf/2004SchieldICME.pdf.
20. Terwilliger, Jim and Milo Schield (2004). *Frequency of Simpson's Paradox in NAEP Data*. Presented at the American Educational Research Association. See www.StatLit.org/pdf/2004TerwilligerSchieldAERA.pdf.
21. Burnham, Tom and Milo Schield (2005). An Online Grammar-parsing Program That Decodes Ordinary English Descriptions and Comparisons of Percentages and Rates. *2005 American Statistical Association Proceedings of the Section on Statistical Education*, [CD-ROM], 2202-2208. See www.StatLit.org/pdf/2005BurnhamSchieldASA.pdf.
22. Schield, Milo (2005a). Information Literacy, Statistical Literacy and Data Literacy. *IQ (IASSIST Quarterly)*, 7-14. See www.StatLit.org/pdf/2005SchieldIASSIST.pdf. Dated 2004; published in 2005.
23. Schield, Milo (2005b). Statistical Literacy: An Evangelical Calling for Statistical Educators, 2005 ISI. See www.StatLit.org/pdf/2005SchieldISI.pdf.
24. Schield, Milo (2005c). *Statistical Prevarication: Telling Half Truths Using Statistics*. 2005 International Assoc. of Statistical Educators (IASE). Invited paper, Sydney. At www.StatLit.org/pdf/2005SchieldIASE.pdf.
25. Schield, Milo (2005d). Statistical Literacy and Chance. *2005 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] 2302-2310. See www.StatLit.org/pdf/2005SchieldASA.pdf.
26. Schield, Milo (2005e). Quantity Words Without Numbers: Why Students use "Many", 2005 QR Conference at Carleton College. See www.StatLit.org/pdf/2005SchieldCarleton.pdf.
27. Schield, Milo and Thomas Burnham (2006). *Binary Confounders as Mathematical Objects: Confounder Influence and Confounder Intervals*. MAA. See www.StatLit.org/pdf/2006SchieldBurnhamMAA.pdf.
28. Burnham, Thomas and Milo Schield (2006). Introduction to an Online Ratio Statement Validator, 2006 IASSIST Workshop. See www.StatLit.org/pdf/2006BurnhamSchieldIASSIST.pdf.
29. Schield, Milo (2006a). Statistical Literacy Workshop Using a web-based Learning Object, 2006 IASSIST Workshop, Connecticut See www.StatLit.org/pdf/2006SchieldIASSISTworkshop.pdf.
30. Schield, Milo (2006b). Statistical Literacy Survey Results, 2006 IASSIST. See www.StatLit.org/pdf/2006SchieldIASSIST.pdf.

31. Schield, Milo (2006c). *Statistical Literacy Survey Analysis: Reading Tables and Graphs of Rates and Percentages*. International Conference on Teaching Statistics. At www.StatLit.org/pdf/2006SchieldICOTS.pdf.
32. Schield, Milo (2006d). Percentage Graphs in USA Today Snapshots Online, *2006 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] 2364-2371. See www.StatLit.org/pdf/2006SchieldASA.pdf.
33. Schield, Milo (2006e). Presenting Confounding and Standardization Graphically. *STATS Magazine*, American Statistical Association. Fall 2006. pp. 14-18. Draft at www.StatLit.org/pdf/2006SchieldSTATS.pdf.
34. Schield, Milo (2007a). Teaching the Social Construction of Statistics, 2007 Midwest Sociological Society, Chicago. See www.StatLit.org/pdf/2007SchieldMSS.pdf.
35. Schield, Milo (2007b). Statistical Literacy: Factual Assessment to Support Hypothetical Thinking, 2007 IASE, Guimarães, Portugal. www.StatLit.org/pdf/2007SchieldIASE.pdf.
36. Schield, Milo and Cynthia Schield (2007). Numbers in the News: A Survey, *2007 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] 2243-2250. See www.StatLit.org/pdf/2007SchieldASA.pdf.
37. Schield, Milo and Thomas Burnham (2007). Grammar of Statements Involving "Chance", *2007 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] pp. 2235-2242. See www.StatLit.org/pdf/2007SchieldBurnhamASA.pdf.
38. Schield, Milo (2008a). Analyzing Numbers in the News: A Critical-Thinking Structured Approach, *2008 National Numeracy Network Conference*. See www.StatLit.org/pdf/2008SchieldNNN.pdf.
39. Schield, Milo (2008b). Quantitative Literacy and School Mathematics: Percentages and Fractions, *Calculation vs. Context: Quantitative Literacy And Its Implications for Teacher Education*. Edited by Bernard L. Madison and Lynn Arthur Steen. 2008 Mathematical Association of America. P. 87-107. See www.statlit.org/pdf/2008SchieldMAA.pdf or www.maa.org/QI/cvc/cvc-087-107.pdf.
40. Schield, Milo (2008c). Statistical Literacy Skills Survey. Project Kaleidoscope and Project Quirk. See www.StatLit.org/pdf/2008SchieldPKAL.pdf.
41. Raymond, Robert and Milo Schield (2008). Numbers in the News: A Survey, *2008 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] P. 2848-2855. See www.StatLit.org/pdf/2008RaymondSchieldASA.pdf.
42. Schield, Milo and Thomas V.V. Burnham (2008). Von Mises' Frequentist Approach to Probability, *2008 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] P. 2187-2194. See www.StatLit.org/pdf/2008SchieldBurnhamASA.pdf.
43. Schield, Milo and Cynthia Schield (2008). Student Attitudes toward Statistics at Augsburg College. *2008 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] P. 2150-2155. See www.StatLit.org/pdf/2008SchieldASA.pdf.
44. Schield, Milo (2009a). Numeracy: Assessing Basic Skills and Knowledge. 2009 Joint Mathematical Meeting of the Mathematical Association of America (MAA). See www.StatLit.org/pdf/2009SchieldMAA.pdf.
45. Schield, Milo (2009b). Confound Those Speculative Statistics. *2009 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] P. 4255-4266. See www.StatLit.org/pdf/2009SchieldASA.pdf.

46. Schield, Milo and Robert Raymond (2009). Distinguishing Association from Causation in Media Headlines. *2009 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] P. 4371-4385. See www.StatLit.org/pdf/2009SchieldRaymondASA.pdf
47. Schield, Milo (2010a). Quantitative Graduation Requirements at US Four-Year Colleges. MAA JMM. See www.StatLit.org/pdf/2010SchieldJMM.pdf
48. Schield, Milo (2010b). Assessing Statistical Literacy: TAKE CARE in *Assessment Methods in Statistical Education: An International Perspective*. Edited by P. Bidgood, N. Hunt and F. Joliffe. Wiley Publishers, Ch. 11, p. 133-152.
49. Schield, Milo (2010c) Association-Causation Problems in News Stories. International Conference on Teaching Statistics (ICOTS-8) in Ljubljana, Slovenia. www.StatLit.org/pdf/2010SchieldICOTS.pdf
50. Schield, Milo (2010d). The Social Construction of Ranks. *2010 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] P. 1016-1030. See www.StatLit.org/pdf/2010SchieldASA.pdf
51. Schield, Milo (2011a) Teaching Statistical Literacy using Odyssey2Sense™: a Unique Web-Based Forum. The Mathematical Association of America. See www.StatLit.org/pdf/2011SchieldMAA.pdf
52. Schield, Milo (2011b). Statistical Literacy: A New Mission for Data Producers. *Statistical Journal of the International Association of Official Statistics*. 27 (2011) 173–183. Edited by N. Davies and J. Ridgway. DOI 10.3233/SJI-2011-0732 See www.StatLit.org/pdf/2011SchieldSJAOS.pdf
53. Schield, Milo (2011c) Describing Arithmetic Relations Using Informal Grammar. *2011 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM] P. See www.StatLit.org/pdf/2011SchieldASA.pdf
54. Schield, Milo (2011d). All Statistics are Socially Constructed. The International Association of Statistical Educators (IASE). See www.StatLit.org/pdf/2011SchieldIASE.pdf
55. Schield, Milo (2011e). Epidemiological Models and Spotty Statistics. The International Statistical Institute (ISI). See www.StatLit.org/pdf/2011SchieldISI.pdf
56. Schield, Milo (2011f). Teaching Teachers Statistical Literacy Online. National Numeracy Network conference, Appalachian State College Conference. See www.StatLit.org/pdf/2011SchieldNNN.pdf

Note: Papers shown in boxes were published in journals, magazines or books.

SPACE PHYSICS PAPERS:

1. M. Schild (1969). Pressure Balance between Solar Wind and Magnetosphere [Preview] J. Geophys. Res., 74, 5, doi:10.1029/JA074i005p01275, 1969
2. M. Schild (1969). Correction to Paper by Milo A. Schild, 'Pressure Balance between Solar Wind and Magnetosphere' J. Geophys. Res., 74, 21, doi:10.1029/JA074i021p05189, 1969
3. Schild, M. A.; Freeman, J. W.; Dessler, A. J., (1969) "A Source for Field-Aligned Currents at Auroral Latitudes" *Journal of Geophysical Research*, Vol 74,1. p.247 doi:10.1029/JA074i001p00247
4. M. Schild and L. Frank J. (1970). Electron Observations between the Inner Edge of the Plasma Sheet and the Plasmasphere [Preview] Geophys. Res., 75, 28, doi:10.1029/JA075i028p05401, 1970

PHILOSOPHY AND SCIENCE PAPERS:

5. Schild, Milo (2004). Resolving Three Key Problems in the Humanities. *The International Journal of the Humanities*. Vol. 2, Num. 3. P. 2375-2385. See www.StatLit.org/pdf/2004SchildNDIH.pdf.
6. Schild, Milo (2005). Making Science a Core Liberal Art for the 21st Century. Project Kaleidoscope. See www.StatLit.org/pdf/2005SchildPKAL.pdf.
7. Schild, Milo (2009). Promoting Objectivity in Science and Ethics. FreeMinds 09. See www.StatLit.org/pdf/2009SchildFreeMinds.pdf.

Note: Papers shown in boxes were published in journals, magazines or books.

Milo Schield: CV