andrew zieffler

250 EdSciB
56 E River Rd
Minneapolis, MN 55455
✉ zief0002@umn.edu
🌐 www.datadreaming.org

Education

2006 **Ph.D.**, *University of Minnesota*
Quantitative Methods in Education, Department of Educational Psychology

1998 **B.S.**, *Saint Cloud State University*
Mathematics Education

Teaching Experience

2013–Present **Senior Lecturer**, *University of Minnesota*, Department of Educational Psychology
- Taught undergraduate level (Basic and Applied Statistics, Understanding Data Stories through Visualization & Computing) and graduate level (Statistical Methods I: Probability and Inference, Survey Design, Sampling, and Implementation, Statistical Methods II: Regression and the General Linear Model, Methods in Data Analysis for Educational Researcher I, Methods in Data Analysis for Educational Researcher II, Statistical Analysis of Longitudinal Data I, Advanced Multiple Regression) statistics courses.
- Developed and taught a graduate course on methods for categorical data, *Methods for Categorical Response Data in Educational Research*.
- Coordinated team of graduate students teaching the undergraduate statistics course.

2006–2012 **Lecturer**, *University of Minnesota*, Department of Educational Psychology

2003–2006 **Instructor**, *University of Minnesota*, Department of Educational Psychology

1998–2002 **Mathematics Teacher**, *ROCORI High School*, Cold Spring, MN

1996–1998 **Mathematics Instructor**, *Saint Cloud State University*

Teaching Honors and Awards

2019 **MPA Award for Outstanding Graduate Faculty in Psychology**, *Minnesota Psychological Association*

2014 **Waller Education Award**, *for outstanding contributions to and innovations in the teaching of elementary statistics*, American Statistical Association, Section on Statistical Education

2013 **COGS Outstanding Faculty Award**, *University of Minnesota*, Council of Graduate Students

2005 **Graduate Student Teaching Award**, *University of Minnesota*, Department of Educational Psychology

1999 **Radioshack National Teacher Award Finalist**, *ROCORI High School*, Cold Spring, MN

Work in Preparation/Review

[†] *denotes graduate student*

[4] Legacy, C.[†], **Zieffler, A.**, Fry, E., & Le, L. (accepted for publication). COMPUTES: An instrument to measure introductory statistics instructors' emphasis on computational practices. *Statistics Education Research Journal*.

[3] Legacy, C.[†], **Zieffler, A.**, Baumer, B. S., Barr, V., & Horton, N. J. (in review). Facilitating team-based data science: Lessons learned from the DSC-WAV project. *Foundations in Data Science*. http://arxiv.org/abs/2106.11209

[2] Hurtado Choque, G. A., Kim, H., Lim, S. S., Alviz, K., Doig, A. C., **Zieffler, A.**, Galos, D., & Marczak, M. (in preparation). Assessing the effectiveness of a nutrition education program for elementary schools in Minnesota. *Journal of Nutrition Education and Behavior*.

[1] Sabbag, A., **Zieffler, A.**, & Ng, C. (in preparation). Can we distinguish statistical literacy and statistical reasoning? *Statistics Education Research Journal*.

Peer-Reviewed Publications

† *denotes graduate student*

[22] Yu, C.-H., Mathiowetz, V. G., **Zieffler, A.**, & Tomlin, G. S. (2021). Efficacy of a forearm rotation orthosis for persons with a hemiparetic arm. *American Journal of Occupational Therapy, 75*(6), 7506205110. https://doi.org/10.5014/ajot.2021.043455

[21] **Zieffler, A.**, Justice, N., delMas, R., & Huberty, M.† (2021). The use of algorithmic models to develop secondary teachers' understanding of the statistical modeling process. *Journal of Statistics and Data Science Education, 29*(1), 131–147. https://doi.org/10.1080/26939169.2021.1900759

[20] Justice, N., **Zieffler, A.**, Huberty, M.†, & delMas, R. (2018). Every rose has it's thorn: Secondary teachers' reasoning about statistical models. *ZDM—The International Journal on Mathematics Education, 50*(7), 1253–1265. https://doi.org/10.1007/s11858-018-0953-1

[19] Sabbag, A. G.†, Garfield, J., & **Zieffler, A.** (2018). Assessing statistical literacy and statistical reasoning: The REALI instrument. *Statistics Education Research Journal, 17*(2), 141–160. https://iase-web.org/documents/SERJ/SERJ17(2)_Sabbag.pdf

[18] Stanhope, E., Ziegler, L., Haque, T., Le, L., Vinces, M., Davis, G. K., **Zieffler, A.**, Brodfuehrer, P., Preest, M., Belitsky, J., Umbanhowar, Jr., C., & Overvoorde, P. J. (2017). Development of a Biological Science Quantitative Reasoning Exam (BioSQuaRE). *CBE–Life Sciences Education, 16*(4), ar66. https://doi.org/10.1187/cbe.16-10-0301

[17] Justice, N.†, **Zieffler, A.**, & Garfield, J. (2017). Statistics graduate teaching assistants' beliefs, practices, and preparation for teaching introductory statistics. *Statistics Education Research Journal, 16*(1), 294–319. https://iase-web.org/documents/SERJ/SERJ16(1)_Justice.pdf

[16] Sabbag, A. G.†, & **Zieffler, A.** (2015). Assessing learning outcomes: An analysis of the GOALS-2 instrument. *Statistics Education Research Journal, 14*(2), 93–116. http://iase-web.org/documents/SERJ/SERJ14(2)_Sabbag.pdf

[15] Umbanhowar Jr., C, Belitsky, J. M., Brodfuehrer, P., Davis, G., Haque, T., Le, L.†, McFadden, C., Overvoorde, P., Preest, M., Stanhope, L., Vinces, M., **Zieffler, A.**, & Ziegler, L.† (2015). Understanding the quantitative and computational skills of incoming biology students. https://qubeshub.org/resources/806

[14] **Zieffler, A.**, & Huberty, M.† (2015). A catalyst for change in the high school math curriculum. *CHANCE, 28*(3), 44–49. https://doi.org/10.1080/09332480.2015.1099365

[13] Garfield, J., Le, L.†, **Zieffler, A.**, & Ben-Zvi, D. (2014). Developing students' reasoning about samples and sampling variability as a path to expert statistical thinking. *Educational Studies in Mathematics, 88*(3), 327–342. https://doi.org/10.1007/s10649-014-9541-7

[12] **Zieffler, A.**, Isaak, R.†, & Garfield, J. (2013). The course as textbook: A symbiotic relationship in the introductory statistics class. *Technology Innovations in Statistics Education, 7*(3). http://escholarship.org/uc/item/12q2z58x

[11] Garfield, J., delMas, R., & **Zieffler, A.** (2012). Developing statistical modelers and thinkers in an introductory, tertiary-level statistics course. *ZDM—The International Journal on Mathematics Education, 44*(4), 883–898. https://doi.org/10.1007/s11858-012-0447-5

[10] **Zieffler, A.**, Park, J.†, Garfield, J., delMas, R., & Bjornsdottir, A.† (2012). The Statistics Teaching Inventory: A survey on statistics teachers' classroom practices and beliefs. *Journal of Statistics Education, 20*(1). https://doi.org/10.1080/10691898.2012.11889632

[9] Davison, M. L., **Zieffler, A.**, Cabrera, J.†, Karl, S. R.†, & Cohen, H. S. (2012). Automated assembly of optimally spaced and balanced paired comparisons: Controlling order effects. *Behavioral Research Methods, 44*(3), 753–764. https://doi.org/10.3758/s13428-011-0170-0

[8] Garfield, J., **Zieffler, A.**, Kaplan, D., Cobb, G., Chance, B., & Holcomb, J. P. (2011). Rethinking assessment of student learning in statistics courses. *The American Statistician, 65*(1), 1–10. https://doi.org/10.1198/tast.2011.08241

[7] Schillo, B. A., Mowery, A., Greenseid, L. O., Luxenberg, M. G., **Zieffler, A.**, Christenson, M., & Boyle, R. G. (2011). The relationship between media promotions and service volume for a statewide tobacco quitline and web-based cessation program. *BMC Public Health, 11*(939). https://doi.org/10.1186/1471-2458-11-939

[6] **Zieffler, A.**, Garfield, J., delMas, R., Bjornsdottir, A.[†], Isaak, R.[†], Le, L.[†], & Park, J.[†] (2011). Publishing in SERJ: An analysis of papers from 2002–2009. *Statistics Education Research Journal, 10*(2), 5–26. http://www.stat.auckland.ac.nz/~iase/serj/SERJ10(2)_Zieffler.pdf

[5] Garfield, J., delMas, R., & **Zieffler, A.** (2009). *Inventing and testing models.* Science Education Resource Center Digital Library project (NSF). Carleton College, Northfield. http://serc.carleton.edu/sp/library/mea/index.html

[4] **Zieffler, A.**, & Garfield, J. (2009). Modeling the growth of students' covariational reasoning during an introductory statistics course. *Statistics Education Research Journal, 8*(1), 7–31. http://www.stat.auckland.ac.nz/~iase/serj/SERJ8(1)_Zieffler_Garfield.pdf

[3] Everson, M., **Zieffler, A.**, & Garfield, J. (2008). Implementing new reform guidelines in teaching introductory college statistics courses. *Teaching Statistics, 30*(3), 66–70.

[2] **Zieffler, A.**, Garfield, J., Alt, S.[†], Dupuis, D.[†], Holleque, K.[†], & Chang, B.[†], (2008). What does research suggest about the teaching and learning of introductory statistics at the college level? A review of the literature. *Journal of Statistics Education, 16(2).* doi: 10.1080/10691898.2008.11889566 https://doi.org/10.1080/10691898.2008.11889566

[1] **Zieffler, A.**, Garfield, J., delMas, R., & Reading, C. (2008). A framework to support research on informal inferential reasoning. *Statistics Education Research Journal, 7*(2), 40–58. http://www.stat.auckland.ac.nz/~iase/serj/SERJ7(2)_Zieffler.pdf

Books and Book Chapters

[†] *denotes graduate student*

[9] National Academies of Sciences, Engineering, and Medicine. (2018). [Contributing Author]. *Data science for undergraduates: Opportunities and options.* Washington, DC: The National Academies Press. https://doi.org/10.17226/25104

[8] Garfield, J., **Zieffler, A.**, & Fry, E.[†] (2017). What is statistics education? In D. Ben-Zvi, K. Makar, & J. Garfield (Eds.), *The international handbook of research in statistics education* (pp. 37–70). Cham, Switzerland: Springer International Publishing.

[7] **Zieffler, A.**, & Fry, E.[†] (eds.) (2015). *Reasoning about uncertainty: Learning and teaching informal inferential reasoning.* Minneapolis, MN: Catalyst Press.

[6] delMas, R., Garfield, J., & **Zieffler, A.** (2014). Using TinkerPlots™ to develop tertiary students' statistical thinking in a modeling-based introductory statistics class. In T. Wassong, D. Frischemeier, P. R. Fischer, R. Hochmuth, & P. Bender (Eds.), *Mit werkzeugen, mathematik und stochastik lernen—Using tools for Learning mathematics and statistics* (pp. 405–420). Wiesbaden, Germany: Springer Spektrum.

[5] **Zieffler, A.**, & Catalysts for Change (2012). *Statistical thinking: A simulation approach to modeling uncertainty.* Minneapolis, MN: Catalyst Press.

[4] **Zieffler, A.**, Harring, J., & Long, J. D. (2011). *Comparing groups: Randomization and bootstrap methods using R.* New York: Wiley.

[3] Garfield, J., delMas, R., & **Zieffler, A.** (2010). Assessing important learning outcomes in introductory tertiary statistics courses. In P. Bidgood, N. Hunt, & F. Jolliffe (Eds.), *Assessment methods in statistical education: An international perspective* (pp. 75–86). Chichester, West Sussex, England: John Wiley & Sons Ltd.

[2] **Zieffler, A.** (2008). [Contributing Author]. In J. Garfield & D. Ben-Zvi, *Developing students' statistical reasoning: Connecting research and teaching practice.* Springer: New York.

[1] Ben-Zvi, D., Garfield, J., & **Zieffler, A.** (2006). Research in the statistics classroom: Learning from teaching experiments. In G. Burrill, & P. C. Elliott (Eds.), *Thinking and reasoning with data and chance: 68th NCTM yearbook* (pp. 467–482). Reston, VA: National Council of Teachers of Mathematics.

Software

† *denotes graduate student*

[4] **Zieffler, A.** (2019). *gopherdown: R Markdown template fro writing a UMN thesis.* https://github.com/zief0002/gopherdown

[3] **Zieffler, A.** (2019). *educate: Miscellaneous R functions for educational statistics.* https://github.com/zief0002/educate

[2] Brown, E., **Zieffler, A.**, Nickodem, K.†, Vue, K.†, & Anderson, E.† (2016). *QME: Classic test theory item analysis.* https://github.com/zief0002/QME

[1] **Zieffler, A.**, Karl, S. R.†, & Cabrera, J.† (2011). *ross: An R package for Ross ordering.* https://github.com/zief0002/Ross

Conference Papers and Proceedings

† *denotes graduate student*

[15] Legacy, C.†, Rao, V. N.†, **Zieffler, A.**, & delMas, R. (2022). Data to graphs and back: Secondary teachers' reasoning about the aesthetic mappings that link data and visualizations. In K. Makar, and D. Ben-Zvi (Eds.), *Proceedings of SRTL-12.*

[14] **Zieffler, A.**, Huberty, M.†, delMas, R., & Justice, N. (2019). *From probabilistic to algorithmic modeling (and back): A case study of secondary teachers.* In R. Gould & L. Zanontian (Eds.), *Proceedings of SRTL-11: New ways of interacting with data, context and chance in statistical modelling processes.* Los Angeles, CA: University of California, Los Angeles.

[13] Justice, N., Huberty, M.†, **Zieffler, A.**, & delMas, R. (2017). Secondary teachers' reasoning about statistical models. In S. Budgett, and M. Pfannkuch (Eds.), *Proceedings of SRTL-10: Innovations in statistical modelling to connect data, chance and context* (pp. 135−156). Auckland, New Zealand: University of Auckland.

[12] Sabbag, A.†, Garfield, J., & **Zieffler, A.** (2015). Quality assessments in statistics education: A focus on the GOALS instrument. In M Alejandra Sorto (Ed.), *Advances in statistics education: Developments, experiences, and assessments (IASE 2015 Satellite Conference).* Voorburg, The Netherlands: International Statistical Institute. http://iase-web.org/documents/papers/sat2015/IASE2015%20Satellite%2041_SABBAG.pdf

[11] Parker, N.†, Fry, E.†, Garfield, J., & **Zieffler, A.** (2014). Graduate teaching assistants' beliefs, practices, and preparation for teaching introductory statistics. In K. Makar, B. de Sousa, and R. Gould (Eds.), *Sustainability in statistics education. Proceedings of the Ninth International Conference on Teaching Statistics (ICOTS-9).* Voorburg, The Netherlands: International Statistical Institute. http://iase-web.org/icots/9/proceedings/pdfs/ICOTS9_C200_PARKER.pdf

[10] Sabbag, A.† & **Zieffler, A.** (2014). A psychometric analysis of the goals and outcomes associated with learning statistics (GOALS) instrument. In K. Makar, B. de Sousa, and R. Gould (Eds.), *Sustainability in statistics education. Proceedings of the Ninth International Conference on Teaching Statistics (ICOTS-9).* Voorburg, The Netherlands: International Statistical Institute. http://iase-web.org/icots/9/proceedings/pdfs/ICOTS9_P27_SabbagZieffler.pdf

[9] **Zieffler, A.**, delMas, R. C., Garfield, J. & Brown, E.† (2014). The symbiotic, mutualistic relationship between modeling and simulation in developing students' statistical reasoning about inference and uncertainty. In K. Makar, B. de Sousa, and R. Gould (Eds.), *Sustainability in statistics education. Proceedings of the Ninth International Conference on Teaching Statistics (ICOTS-9).* Voorburg, The Netherlands: International Statistical Institute. http://iase-web.org/icots/9/proceedings/pdfs/ICOTS9_8B1_ZIEFFLER.pdf

[8] delMas, R., Garfield, J., & **Zieffler, A.** (2014). The symbiotic role of modeling and simulation for developing students' statistical reasoning related to inference and uncertainty. In *Papers Presented at the 2014 National Council of Teachers of Mathematics Research Presession.* New Orleans, LA.

[7] delMas, R., Garfield, J., & **Zieffler, A.** (2010). Developing tertiary-level students' statistical thinking through the use of model-eliciting activities. In C. Reading (Ed.), *Proceedings of the Eighth International Conference on Teaching Statistics.* Voorburg, The Netherlands: International Statistical Institute.

[6] **Zieffler, A.**, Garfield, J., delMas, R., and Bjornsdottir, A.[†] (2010). Development of an instrument to assess statistical thinking. In C. Reading (Ed.), *Proceedings of the Eight International Conference on Teaching Statistics*. Voorburg, The Netherlands: International Statistical Institute.

[5] **Zieffler, A.** (2008). *Dirk Gently's Guide to Holistic Assessment*. In *Papers Presented at the 2008 Joint Statistical Meetings*. Denver, CO, July 31–August 7, 2008.

[4] Garfield, J., **Zieffler, A.**, delMas, R., Chance, B., Hilton, S., & Lesser, L. (2007). Practical issues in conducting statistics education research. In *Papers Presented at the 2006 Joint Statistical Meetings*. Seattle, WA, August 6–10, 2006.

[3] Lane-Getaz, S.[†], & **Zieffler, A.** (2007). Using simulation to introduce inference: An active learning approach. In *Papers Presented at the 2006 Joint Statistical Meetings*. Seattle, WA, August 6–10, 2006.

[2] **Zieffler, A.**, Garfield, J., & delMas, R. (2007). Studying the role of simulation in developing students' statistical reasoning. *Proceedings of the 56th Session of the International Statistical Institute (ISI), Lisbon, Portugal*. https://www.stat.auckland.ac.nz/~iase/publications/isi56/IPM40_Zieffler.pdf

[1] **Zieffler, A.**, Garfield, J., delMas, R., & Gould, R. (2007). Studying the development of college students' informal reasoning about statistical inference. *Proceedings of the 5th Statistical Reasoning, Thinking and Literacy (SRTL) Research Forum, Coventry, England*.

Other Publications

[†] *denotes graduate student*

[6] Horton, N. J., Baumer, Benjamin S., **Zieffler, A.**, & Barr, V. (2021). The Data Science Corps Wrangle-Analyze-Visualize program: Building data acumen for undergraduate students. *Harvard Data Science Review, 3*(1). https://doi.org/10.1162/99608f92.8233428d

[5] **Zieffler, A.**, & Justice, N.[†] (2015). Teardowns, historical renovation, and paint-and-patch: Curricular changes and faculty development. Invited comment on G. Cobb, 'Mere renovation is too little too late: We need to Rethink our Undergraduate Curriculum from the Ground Up'. *The American Statistician, 69*(4). http://dx.doi.org/10.1080/00031305.2015.1093029

[4] Isaak, R., **Zieffler, A.**, & Garfield, J. (2013). Response. *Technology Innovations in Statistics Education, 7*(3). http://escholarship.org/uc/item/8gq9t3c3

[3] Gill, B., **Zieffler, A.**, Boynton, N., Alberts, K. S., Humphrey, P., McKenzie, J., & Posner, M. A. (2012). Response to 'Statistics à la Mode'. *AmStat News, February*, x–xx. http://magazine.amstat.org/blog/2012/02/01/maa-response/

[2] Garfield, J., & **Zieffler, A.** (2011). Response to: "Towards more accessible conceptions of statistical inference" by C. Wild, M. Pfannkuch, M. Regan and N. J. Horton. *Journal of the Royal Statistical Society. Series A, 174*(Part 2), 280.

[1] **Zieffler, A.** (1999). A statistical journey with ninth grade students. *Math Times, Winter*, 14.

Workshops

[†] *denotes graduate student*

[22] Elmquist, M.[†], & **Zieffler, A.** (2019, November). *Blogdown workshop.* A workshop presented for the Department of Educational Psychology, University of Minnesota, Minneapolis, MN.

[21] Stanhope, E., **Zieffler, A.**, Grayson, K., Larson, E., & Overvoorde, P. (2019, July). *Combining forces to use assessment to promote enduring quantitative reasoning curricular reform.* A workshop presented at the Society for the Advancement of Biology Education Research, Minneapolis, MN.

[20] Kaplan, D., **Zieffler, A.**, Kozak, K., Burn, H., & Brilleslyper, M. (2019, June). *statPREP.* A workshop presented at Tarrant County College, Fort Worth, TX.

[19] Kaplan, D., Pruim, R., **Zieffler, A.**, McNamara, A., Orosz, B. Ryu, H., & Roith, J. (2019, June). *statPREP.* A workshop presented at Howard Community College, Columbia, MD.

[18] **Zieffler, A.**, Huberty, M.[†], Dolor, J., Clement, K., & Noll, J. (2019, May). *Evidence and uncertainty: A modeling and simulation-based approach to statistical inference.* A two-day workshop presented at The United States Conference on Teaching Statistics, State College, PA.

[17] Hardin, J., Kaplan, D., Silva, A., & **Zieffler, A.** (2018, June). *statPREP.* A workshop presented at College of the Canyons, Santa Clarita, CA.

[16] Johnson, A., Kaplan, D., Prium, R., Roith, J., & **Zieffler, A.** (2018, June). *statPREP.* A workshop presented at St. Catherine University, St. Paul, MN.

[15] Kaplan, D., Kozak, K., McNamara, A., Roith, J., & **Zieffler, A.** (2017, June). *statPREP.* A workshop presented at St. Catherine University, St. Paul, MN.

[14] **Zieffler, A.** & Parker, N.[†] (2014, January) *CATALST: Introductory statistics using randomization and bootstrap methods.* A workshop presented at the Joint Mathematics Meetings, Baltimore, MD.

[13] **Zieffler, A.**(2013, March). *Using R for data analysis.* A workshop presented at the Minnesota Evaluation Studies Institute, Minneapolis, MN.

[12] Isaak, R.[†], Le, L.[†], Ziegler, L.[†], Garfield, J., **Zieffler, A.**, & delMas, R. (2012, May). *A flavor of the CATALST course: Using randomization-based methods in an introductory statistics course.* An invited workshop presented at the First Biennial Electronic Conference on Teaching Statistics. http://www.causeweb.org/ecots/workshop

[11] Garfield, J., delMas, R., **Zieffler, A.**, Le, L.[†], Ziegler, L.[†], & Isaak, R.[†] (2012, January). *CATALST implementers workshop.* A workshop for CATALST implementers presented at the Joint Mathematics Meetings, Boston, MA.

[10] **Zieffler, A.**, & Harring, J. (2011, December). *Comparing Groups: Randomization and Bootstrap Methods Using R.* An invited workshop presented at The 67th Deming Conference on Applied Statistics, Atlantic City, NJ.

[9] Garfield, J., delMas, R., **Zieffler, A.**, Rossman, A., Chance, B., Holcomb, J., Cobb, G., Isaak, R.[†], Le, L.[†], & Ziegler, L.[†] (2011, May). *CATALST implementers workshop.* A workshop for CATALST implementers presented at The United States Conference on Teaching Statistics, Raleigh, NC.

[8] **Zieffler, A.** (2011, May). *Using R for teaching and research.* A workshop presented at North Dakota State University, Fargo, ND.

[7] Garfield, J., delMas, R., **Zieffler, A.**, Rossman, A., Chance, B., Holcomb, J., & Cobb, G. (2011, January). *CATALST implementers workshop.* A workshop presented at The Joint Mathematics Meetings, New Orleans, LA.

[6] Garfield, J., delMas, R., **Zieffler, A.**, Rossman, A., Chance, B., Holcomb, J., & Cobb, G. (2010, June). *CATALST Workshop.* A workshop presented at the University of Minnesota, Minneapolis, MN.

[5] Garfield, J., delMas, R., **Zieffler, A.**, Rossman, A., Chance, B., Holcomb, J., & Cobb, G. (2010, January). *Become a catalyst for change in statistics education.* A workshop presented at The Joint Mathematics Meetings, San Francisco, CA. http://www.ams.org/amsmtgs/2124_maaancillary.html

[4] delMas, R., Garfield, J., & **Zieffler, A.** (2009, November). *Using model–eliciting activities to teach statistics.* A workshop presented at the annual meetings of the American Mathematics Association of Two-Year Colleges, Las Vegas, NV.

[3] Garfield, J., delMas, R., **Zieffler, A.**, Rossman, A., Chance, B., & Holcomb, J. (2009, June). *Become a catalyst for change in statistics education.* A CAUSEway Workshop presented at The Ohio State University, Columbus, OH. http://www.causeweb.org/workshop/uscots09_catalyst4change/

[2] Kaplan, D.., delMas, R., & **Zieffler, A.** (2009, February). *Starting with R.* A workshop presented at Macalester College, St. Paul, MN. http://www.macalester.edu/~kaplan/startingwithr/

[1] Garfield, J., delMas, R., & **Zieffler, A.** (2008, June). *AIMS: Adapting and Implementing Innovative Materials in Statistics.* A CAUSEway Workshop presented at the University of Minnesota, Minneapolis, MN. http://www.causeweb.org/workshop/aims/

Invited Presentations

[†] *denotes graduate student*

[57] Justice, N., **Zieffler, A.**, delMas, R., & Huberty, M. (2021, April). *Exploring new possibilities for teaching and learning statistical modeling: An algorithmic approach.* Invited presentation at Appalachian State University, Department of Mathematical Sciences.

[56] **Zieffler, A.**, Justice, N., delMas, R., & Huberty, M.[†] (2021, April). *The use of algorithmic models to develop secondary teachers' understanding of the statistical modeling process.* Invited presentation for the CAUSE webinar series. Online.

[55] **Zieffler, A.**, Hofelich Mohr, A., Brown, E. C., & Bye, J. K. (2020, July). *R @ 25 Lunch & Learn: Understanding the landscape of the popular free/open source statistics software.* Invited panel presentation for the Research Methodology Consulting Center and Liberal Arts Technologies and Innovation Services, University of Minnesota, Minneapolis, MN.

[54] **Zieffler, A.** (2019, April). *Deprecating statistical significance: Toward better science.* Invited presentation for the Department of Speech-Language-Hearing Sciences (Pro-Sem), University of Minnesota, Minneapolis, MN.

[53] **Zieffler, A.** (2018, October). *I've got a categorical variable. Now what?* Invited presentation for the Research Methodology Consulting Center (Lunch & Learn Series), University of Minnesota, Minneapolis, MN.

[52] **Zieffler, A.** (2018, June). *Statistical computing: Non-ignorable missingness in the graduate-level social science curriculum.* Invited presentation at the Annual Meeting of the Statistical Society of Canada, Montreal.

[51] **Zieffler, A.** (2017, July). *The idle ramblings of an inquisitive malcontent (or discussing models).* Invited presentation at the 10th Statistical Reasoning, Thinking and Literacy (SRTL) Research Forum, Rotorua, New Zealand.

[50] **Zieffler, A.**, Sullivan, A., Utts, J., & Wender, B. (2017, May). *Statistics and the emerging discipline of data science.* Invited presentation and breakout session at the United States Conference on Teaching Statistics. State College, PA.

[49] **Zieffler, A.**, Belitsky, J., Stanhope, E., & Overvoorde, P. (2017, March). *Development of BioSQuaRE.* Invited presentation at the HHMI Constellation Studio Meeting, Chevy Chase, MD.

[48] **Zieffler, A.**, & Stohl Lee, H. (2017, February). *Using simulations and modeling environments as data sources.* Invited presentation at the Data Science Education Technology Conference. Berkeley, CA.

[47] **Zieffler, A.** (2016, December). *Increasing diversity in data science.* Invited presentation at Envisioning the data science discipline: The undergraduate perspective. National Academies of Sciences, Engineering, and Medicine, Washington DC.

[46] **Zieffler, A.** (2016, March). *Putting the CART before the horse: Introducing advanced methodologies in introductory statistics courses.* Invited presentation at the Canadian Statistical Science Institute (CANSSI) Statistics Education Workshop at the Fields Institute, Toronto, Ontario, Canada. http://www.fields.utoronto.ca/activities/15-16/statistics-ed-research

[45] Lebeau, B., **Zieffler, A.**, & Nickodem, K.[†] (2015, December). *Web scraping to item response theory: A college football adventure.* Invited presentation at the Central Iowa R Users Group, Des Moines, IA. http://educate-r.org/2015/12/04/centraliowaruser/

[44] Sabbag, A.[†], Garfield, J., & **Zieffler, A.** (2015, October). *A focus on statistical reasoning. What did we learn from the GOALS instrument?* Invited presentation at Stat Chat, Macalester College, St. Paul, MN.

[43] **Zieffler, A.** & Huberty, M.[†] (2015, October). *Modeling and simulation via CATALST: An alternative option for high school students.* Invited webinar for the ASA K-12 Statistics Education Webinar Series. https://www.amstat.org/education/webinars/

[42] **Zieffler, A.** (2015, July). *Statistics education: Is an evidence-based discipline based on evidence?* Invited presentation at the Canadian Statistical Sciences Institute's Statistics Education Workshop at The University of Western Ontario, London, Ontario, Canada.

[41] delMas, R., Brown, E.[†], & **Zieffler, A.** (2015, April). *A comparison between randomization-based and conventional introductory statistics courses.* Invited presentation at the School of Social Science, University of Iceland, Reykjavik.

[40] delMas, R., Brown, E.[†], & **Zieffler, A.** (2015, March). *A comparison between randomization-based and conventional introductory statistics courses.* Invited presentation at the Mid-Michigan Chapter of the American Statistical Association and faculty and students of the Department of Mathematics, Central Michigan University, Mount Pleasant, MI.

[39] **Zieffler, A.** (2014, November). *On Your Markdown. Get set. Go!* Invited presentation for the Department of Speech-Language-Hearing Sciences (Pro-Sem), University of Minnesota, Minneapolis, MN.

[38] **Zieffler, A.**, delMas, R., Garfield, J., & Brown, E.[†] (2014, July). *The symbiotic,mutualistic relationship between modeling and simulation in developing students' statistical reasoning about inference and uncertainty.* Invited paper presented at the Ninth International Conference on Teaching Statistics (ICOTS-9), Flagstaff, Arizona.

[37] delMas, R., **Zieffler, A.**, & Brown, E.[†] (2014, April). *The symbiotic role of modeling and simulation for developing students' statistical reasoning related to inference and uncertainty.* Invited presentation at the National Council of Teachers of Mathematics Research Presession, New Orleans, LA.

[36] **Zieffler, A.** (2013, April). *Spend time now; Save time later* Invited presentation for the Department of Speech-Language-Hearing Sciences (Pro-Sem), University of Minnesota, Minneapolis, MN.

[35] Fry, E.[†], Ziegler, L.[†], Garfield, J., **Zieffler, A.**, & delMas, R. (2013, January). *The CATALST Course: Using randomization-based methods in an introductory statistics course.* Invited panel presentation at the Joint Mathematics Meetings, San Diego, CA.

[34] Garfield, J., Kaplan, D., Konold, C., Lock, R., & **Zieffler, A.** (2012, July). *Models and modeling in introductory statistics classes.* Invited panel presentation at the Joint Statistics Meetings, Boston, MA.

[33] Isaak, R.[†], Garfield, J., **Zieffler, A.**, & delMas, R. (2012, June). *A different introductory statistics menu: Randomization and resampling techniques.* Invited presentation at the Quantitative Analysis Center Summer Workshop, Wesleyan University, Middletown, CT.

[32] Garfield, J., delMas, R., **Zieffler, A.**, Le, L.[†], Isaak, R.[†], & Ziegler, L.[†] (2012, January). *Change agents for teaching and learning statistics: The catalyst cooks come to Harvard.* Invited presentation at Harvard University, Cambridge, MA.

[31] **Zieffler, A.**, & Garfield, J. (2012, January). *Teaching introductory statistics to college students who have taken curricula based on the CCSS.* Invited presentation at the Joint Mathematics Meetings, Boston, MA.

[30] **Zieffler, A.** (2011, December). *Computing tools for the applied data analyst.* An invited presentation at the EDMS Measurement & Statistics Monday Symposia, University of Maryland, College Park, MD.

[29] Isaak, R.[†], Garfield, J., delMas, R., **Zieffler, A.**, Rossman, A., Chance, B., Holcomb, J., Cobb, G., Everson, M., Ziegler, L.[†], & Le, L.[†] (2011, August). *The course as textbook.* Invited paper presented at the Joint Statistical Meetings, Miami, FL.

[28] Ziegler, L.[†], **Zieffler, A.**, Garfield, J., delMas, R., Rossman, A., Chance, B., Holcomb, J., Cobb, G., Isaak, R.[†], & Le, L.[†] (2011, August). *CART in CATALST.* Invited paper presented at the Joint Statistical Meetings, Miami, FL.

[27] Isaak, R.[†], Le, L.[†], Ziegler, L.[†], Garfield, J., **Zieffler, A.**, & delMas, R. (2011, June). *Create an iron chef in statistics classes?* Invited Web seminar presented for the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE), The Ohio State University, Columbus, OH. http://www.causeweb.org/webinar/teaching/2011-06

[26] **Zieffler, A.**, delMas, R., Groth, R., & Mvududu, N. (2011, May). *Introduction to qualitative research methods in statistics education research.* Invited presentation at the United States Conference on Teaching Statistics, Raleigh, NC.

[25] Garfield, J., delMas, R., & **Zieffler, A.** (2011, March). *Developing students' statistical reasoning through active learning.* Invited presentation at the Japanese Conference on Teaching Statistics, Rikkyo University, Tokyo, Japan.

[24] Garfield, J., delMas, R., **Zieffler, A.**, Le, L.[†], Isaak, R.[†], & Ziegler, L. A.[†] (2011, March). *A different flavor of introductory statistics: Teaching students to really cook.* Invited presentation at the Center for Statistical Information, Rikkyo University, Tokyo, Japan.

[23] **Zieffler, A.**, Garfield, J., delMas, R., Rossman, A., Chance, B., Holcomb, J., Cobb, G., Isaak, R.[†], Le, L.[†], & Ziegler, L.[†] (2011, April). *It takes a village to effect change: The CATALST course teaching experiment.* Invited presentation at the National Council of Teachers of Mathematics Research Presession, Indianapolis, IN.

[22] delMas, R., Garfield, J., **Zieffler, A.**, Le, L.[†], Isaak, R.[†], & Ziegler, L.[†] (2011, February). *A different flavor of introductory statistics: Teaching students to really cook.* Invited presentation at Stat Chat, Macalester College, St. Paul, MN.

[21] delMas, R., Garfield, J., **Zieffler, A.**, Le, L.†, Isaak, R.†, & Ziegler, L.† (2011, February). *A different flavor of introductory statistics: Teaching students to really cook.* Invited presentation at the Department of Statistics, Brigham Young University, Salt Lake City, UT.

[20] delMas, R., Garfield, J., **Zieffler, A.**, Le, L.†, Isaak, R.†, & Ziegler, L.† (2011, February) *A different flavor of introductory statistics: Teaching students to really cook.* Invited presentation at the Fariborz Maseeh Department of Mathematics and Statistics, Portland State University, Portland, OR.

[19] delMas, R., Garfield, J., **Zieffler, A.**, Le, L.†, Isaak, R.†, & Ziegler, L.† (2011, January). *A different flavor of introductory statistics: Teaching students to really cook.* Invited presentation at the Centre for Methodology of Educational Research, Katholieke Universiteit Leuven, Belgium.

[18] **Zieffler, A.** (2010, July). *Assessment for learning.* Invited presentation for the Project MOSAIC Kick-Off Workshop, Institute for Mathematics and its Applications, Minneapolis, MN.

[17] delMas, R., Garfield, J., & **Zieffler, A.** (2010, May). *A radical approach to teaching introductory statistics: The CATALST project.* Invited presentation at the 38th Meeting of the Statistical Society of Canada, Quebec City, Quebec, Canada.

[16] **Zieffler, A.** (2010, May). *Vive la refornie! On the history of statistics education.* Invited presentation for the Statistics Department, University of California, Los Angeles.

[15] **Zieffler, A.** (2010, March). *Using R for statistical analysis.* Invited presentation for the Minnesota Evaluation Studies Institute, Bloomington, MN.

[14] Garfield, J., delMas, R., & **Zieffler, A.** (2010, February). *Sample an AIMS activity: What makes the standard deviation larger or smaller?* Invited Web seminar for the Consortium for the Advancement of Undergraduate Statistical Education (CAUSE), The Ohio State University, Columbus, OH.

[13] **Zieffler, A.** (2010, January). *Excuse me …Where is the Department of Statistics Education?* Invited presentation at the Joint Mathematical Meetings, San Francisco, CA.

[12] **Zieffler, A.** (2009, September). *Vive la refornie! On the history of statistics education.* Invited presentation at Stat Chat, Macalester College, St. Paul, MN.

[11] delMas, R., Garfield, J., & **Zieffler, A.** (2009, August). *A national survey on teaching practices in undergraduate statistics instruction.* Invited presentation at the Joint Statistical Meetings, Washington, DC.

[10] **Zieffler, A.**, Garfield, J., & delMas, R. (2009, August). *Change agents for teaching and learning statistics: The CATALST project.* Invited presentation at the Joint Statistical Meetings, Washington, DC.

[9] Kaplan, D., & **Zieffler, A.** (2009, June). *Using R for teaching statistics.* Invited presentation at the United States Conference on Teaching Statistics, Columbus, OH.

[8] delMas, R., Garfield, J., & **Zieffler, A.** (2009, February). *Aiming to improve students' statistical reasoning: An introduction to AIMS materials.* Invited Web seminar for the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE), The Ohio State University, Columbus, OH.

[7] **Zieffler, A.** (2008, October). *Graphics and Visualizations.* Invited presentation at Stat Chat, Macalester College, St. Paul, MN.

[6] **Zieffler, A.** (2008, August). *Dirk Gently's guide to holistic assessment.* Invited paper presented at the Joint Statistical Meetings, Denver, CO.

[5] Rodriguez, M., & **Zieffler, A.** (2007, November). *Measurement that supports assessment for learning.* Invited Web seminar for the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE), The Ohio State University, Columbus, OH.

[4] **Zieffler, A.**, Garfield, J., & delMas, R. (2007, August). *Studying the role of simulation in developing students' statistical reasoning.* Invited presentation at the 56th Session of the International Statistical Institute (ISI), Lisbon, Portugal.

[3] **Zieffler, A.**, & Everson, M. (2007, May). *GAISE 2007: A statistics odyssey.* Invited presentation at the United States Conference on Teaching Statistics, Columbus, OH.

[2] **Zieffler, A.** (2007, March). *Conducting classroom research in statistics education: Issues, challenges and examples.* Invited Web seminar presented for the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE), The Ohio State University, Columbus, OH.

[1] **Zieffler, A.** (2006, August). *Conducting classroom research and writing a dissertation: Lessons learned about statistics education research.* Invited paper presented at the Joint Statistical Meetings, Seattle, WA.

Contributed Presentations

† *denotes graduate student*

[43] Rowell, G., Kuiper, S., Sturdivant, R., & **Zieffler, A.** (2021, August). *Can students learn statistics while playing games? A regression example.* Presentation at the Joint Statistical Meetings, Seattle, WA.

[42] **Zieffler, A.** (2021, July). *Program assessment sub-working group.* Presentation at the South Big Data Hub All–Hands Meeting, Online.

[41] Baumer, B. S., Horton, N. J., **Zieffler, A.**, & Legacy, C.† (2021, June). *Facilitating team-based data science: Lessons learned from the DSC-WAV project.* Presentation at the United States Conference on Teaching Statistics, Online.

[40] Justice, N., **Zieffler, A.**, delMas, R., & Huberty, M. (2021, February). *Scouting new trails: An algorithmic approach to teaching and learning statistical modeling.* Presentation at Pacific Lutheran University.

[39] Justice, N., Huberty, M.†, **Zieffler, A.**, & delMas, R. (2019, November). *Is it time to put the CART before the horse? A case for algorithmic modeling in the K–12 curriculum.* Presentation at the University of Washington Math Enthusiast Series, Tacoma, WA.

[38] Huberty, M.†, **Zieffler, A.**, delMas, R., & Justice, N. (2019, July). *From probabilistic to algorithmic modeling (and back): A case study of secondary teachers.* Presentation at the 11th Statistical Reasoning, Thinking and Literacy (SRTL-11) Research Forum, Los Angeles, CA.

[37] **Zieffler, A.** (2019, July). *TinkerPlots II: The departed.* Presentation at the 11th Statistical Reasoning, Thinking and Literacy (SRTL-11) Research Forum, Los Angeles, CA.

[36] **Zieffler, A.** (2019, July). *Discussion.* Presentation at the 11th Statistical Reasoning, Thinking and Literacy (SRTL-11) Research Forum, Los Angeles, CA.

[35] Dolor, J., Clement, K., **Zieffler, A.**, Huberty, M.†, Noll, J., & Kirin, D. (2019, June). *Exploring student approaches to model construction in a simulation-based inference curriculum.* Presentation at the United States Conference on Teaching Statistics, State College, PA.

[34] Huberty, M., Justice, N., **Zieffler, A.**, & delMas, R. (2018, July). *Secondary teachers' understanding of statistical modeling after teaching a simulation-based statistical inference course.* Presentation at the 10th International Conference on Teaching Statistics, Kyoto, Japan.

[33] Butler, D., Finholm, J., Johnson, K., Nguyen, M., Huberty, M.†, & **Zieffler, A.** (2018, May). *Teaching statistics from the trenches.* Presentation at the Minnesota Council of Teachers of Mathematics Spring Conference, Duluth, MN.

[32] Gust, A., Swendiman, S., Hanson, M., Mullenbach, M., Gieschen, T., Huberty, M.†, & **Zieffler, A.** (2018, May). *Be above average: Teaching introductory statistics for deeper understanding.* Presentation at the Minnesota Council of Teachers of Mathematics Spring Conference, Duluth, MN.

[31] Kolaczyk, E., **Zieffler, A.**, & Wender, B. (2018, May). *Data science education across the U.S. and the National Academies.* Presentation at the Electronic Conference On Teaching Statistics.

[30] Justice, N.†, **Zieffler, A.**, Huberty, M., & delMas, R. (2017, July). *Secondary teachers' reasoning about statistical models.* Presentation at the 10th Statistical Reasoning, Thinking and Literacy (SRTL-10) Research Forum, Rotorua, New Zealand.

[29] LeBeau, B., **Zieffler, A.**, & Nikodem, K.† (2016, August). *Estimating NCAA football coaches' abilities: An application of item response theory.* Presentation at the Joint Statistical Meetings, Chicago, IL. http://educate-r.org/2016/07/31/jsm2016.html

[28] Brown, E.†, Vue, K.†, & **Zieffler, A.** (2016, June). *Convenient educational and psychological test reporting with the QME package and a Shiny UI.* Presentation at the 2016 UseR! conference, Palo Alto, CA..

[27] Overvoorde, P., Belitsky, J., Brodfuehrer, P., Davis, G., Haque, T., Le, L.†, Preest, M., Stanhope, L., Umbanhower, C., Jr., Vinces, M., **Zieffler, A.**, & Ziegler, L.† (2016, April). *Lessons learned during the development of BioSQuaRE, an instrument to assess undergraduate biological quantitative skills.* Presentation at the HHMI Constellation Studios for Science Education, Chevy Chase, MD.

[26] Johnston-Goodstar, K., VeLure Roholt, R. R., Fink, A.[†], & **Zieffler, A.** (2016, April). *School climate and Native American youth well-being.* Roundtable presentation at the annual meeting of the American Educational Research Association, Washington DC.

[25] **Zieffler, A.**, & Huberty, M.[†] (2015, November). *Modeling and simulation via CATALST: An alternative option for high school students.* Presentation at the National Council of Teachers of Mathematics Regional Conference, Minneapolis, MN.

[24] Sabbag, A.[†], Garfield, J., & **Zieffler, A.** (2015, July). *Quality assessments in statistics education: A focus on the GOALS instrument.* Presentation at the International Association for Statistics Education Satellite Conference, Rio do Janeiro, Brazil.

[23] Belitsky, J., Vinces, M., Darling, N., Brodfuehrer, P., Davis, G., Haque, T., Le, L.[†], McFadden, C., Overvoorde, P., Preest, M., Stanhope, L., Umbanhower, C., Jr., **Zieffler, A.**, & Ziegler, L.[†] (2015, May). *Assessing quantitative skills preparedness and learning.* Presentation at the Ohio Project Kaleidoscope Conference, Otterbein University, Westerville, OH.

[22] Overvoorde, P., Belitsky, J., Brodfuehrer, P., Davis, G., Haque, T., Le, L.[†], McFadden, C., Preest, M., Stanhope, L., Umbanhower, C., Jr., Vinces, M., **Zieffler, A.**, & Ziegler, L.[†] (2015, May). *Defining the quantitative and computational skills of incoming biology students.* Presentation at the Understanding Interventions Conference, San Diego, CA.

[21] Overvoorde, P., Belitsky, J., Brodfuehrer, P., Davis, G., Haque, T., Le, L.[†], McFadden, C. Preest, M., Stanhope, L., Umbanhower, C., Jr., Vinces, M., **Zieffler, A.**, & Ziegler, L.[†] (2015, February). *Past and future of BioSQuaRE as an instrument developed by the Q6 Consortium.* Presentation at the Quantitative Undergraduate Biology Education Summit, Raleigh, NC.

[20] Justice, N.[†], Garfield, J., Fry, E.[†], & **Zieffler, A.** (2014, July). *The Graduate Student Statistics Teaching Inventory.* Paper presented at the Ninth International Conference on Teaching Statistics (ICOTS-9), Flagstaff, Arizona.

[19] delMas, R., **Zieffler, A.**, & Brown, E.[†] (2013, August). *Students' emerging reasoning with uncertainty in a randomization-based first course in statistics at the tertiary level.* Presentation at the Eighth International Research Forum on Statistical Reasoning, Thinking, and Literacy, Duluth, MN.

[18] Isaak, R.[†], **Zieffler, A.**, Garfield, J., & Kaplan, D. (2012, January). *Developing a modeling concept inventory.* Presentation at the Joint Mathematics Meetings, Boston, MA.

[17] Isaak, R.[†], **Zieffler, A.**, Garfield, J., & Kaplan, D. (2011, November). *Developing a concept inventory for modeling.* An M-Cast presented for Project MOSAIC. http://www.mosaic–web.org/MCAST/videos/ MCAST-2011-11-18/index.htm

[16] Park, J.[†], delMas, R., **Zieffler, A.**, & Garfield, J. (2011, August). *A research-based statistics course for tertiary students.* Paper presented at the 58th Session of the International Statistical Institute (ISI), Dublin, Ireland.

[15] **Zieffler, A.**, delMas, R., & Garfield, J. (2011, July). *How do tertiary students reason about samples and sampling in the context of a modeling and simulation approach to inference?* Presentation at the 7th Statistical Reasoning, Thinking and Literacy (SRTL) Research Forum, Texel Island, The Netherlands.

[14] **Zieffler, A.** (2011, May). *Using R for teaching bootstraps and randomizations.* Demonstration session at the United States Conference on Teaching Statistics, Raleigh, NC.

[13] Garfield, J., delMas, R, & **Zieffler, A.** (2010, July). *Developing tertiary–level students' statistical thinking through the use of model–eliciting activities.* Presentation at the Eighth International Conference on Teaching Statistics, Ljubljana, Slovenia.

[12] **Zieffler, A.**, Garfield, J., & delMas, R. (2010, July). *Development of an instrument to assess statistical thinking.* Paper presented at the Eighth International Conference on Teaching Statistics, Ljubljana, Slovenia.

[11] Park, J.[†], Bjornsdottir, A.[†], **Zieffler, A.**, Garfield, J., & delMas, R. (2010, May). *Developing a statistics teaching and beliefs survey.* Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.

[10] Garfield, J., delMas, R., & **Zieffler, A.** (2009, September). *Science Education Resource Center Digital Library project.* Presentation at Stat Chat, Macalester College, St. Paul, MN.

[9] Schillo, B., Dreher, M., St. Claire, A., Luxenberg, M., Christenson, M., & **Zieffler, A.** (2009, April). *Promoting statewide helpline and web-based cessation services: An analysis of service volumes and media efforts.* Paper presented at the Joint Conference of Society for Research on Nicotine and Tobacco and Society for Research on Nicotine and Tobacco–Europe, Dublin, Ireland.

[8] **Zieffler, A.** (2009, April). *Using R in the introductory graduate statistics sequence.* Presentation for the Educational Statisticians Special Interest Group, at the annual meeting of the American Educational Research Association, San Diego, CA.

[7] **Zieffler, A.** (2008, March). *Rethinking graduate applied educational statistics classes.* Presentation for the Educational Statisticians Special Interest Group, at the annual meeting of the American Educational Research Association, New York, NY.

[6] delMas, R., Garfield, J., & **Zieffler, A.** (2008, January). *Innovative, research-based activities for a first course in statistics.* Paper presented at the Joint Mathematics Meetings, San Diego, CA.

[5] **Zieffler, A.**, Garfield, J., delMas, R., & Gould, R. (2007, August). *Studying the development of college students' informal reasoning about statistical inference.* Presentation at the 5th Statistical Reasoning, Thinking and Literacy (SRTL) Research Forum, Coventry, England.

[4] **Zieffler, A.**, & Garfield, J. (2007, April). *Modeling the growth of students' covariational reasoning during an introductory statistics course.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

[3] Garfield, J., delMas, R., & **Zieffler, A.** (2006, September). *Adapting and Implementing Innovative Materials in Statistics (AIMS): Developing lessons aligned with GAISE.* Presentation at Stat Chat, Macalester College, St. Paul, MN.

[2] **Zieffler, A.** (2005, August). *Using GAISE to create a better introductory statistics course.* Paper presented at the Joint Statistical Meetings, Minneapolis, MN.

[1] **Zieffler, A.** (2001, June). *Using the TI-83 calculator to create fractals.* Paper presented at the Saint Cloud State University Fractals & Chaos Workshop, Saint Cloud, MN.

Posters

† *denotes graduate student*

[29] Rao, V. N. V.†, Legacy, C.†, Brown, J. M.†, **Zieffler, A.**, & delMas, R. (2021, August). *Data-to-graphs and back: Secondary teachers' reasoning about aesthetic mappings in data visualization.* Poster presentated at the 12th Annual Satellite Conference of the International Association for Statistical Education, Online.

[28] Legacy, C.†, **Zieffler, A.**, Fry, E., & Le, L. (2021, June). *The state of computing in introductory statistics.* Poster presented at the United States Conference on Teaching Statistics, Online.

[27] McNamara, A., Legacy, C.†, Rao, V.†, Butler, E. B.†, delMas, R., **Zieffler, A.**, & Beckman, M. (2021, June). *Computing in the statistics curriculum: Lessons learned from the educational sciences.* Poster presented at the United States Conference on Teaching Statistics, Online.

[26] Rao, V.†, Legacy, C.†, & **Zieffler, A.** (2021, June). *Students' perspectives on entering a data science career after experiential learning with local community organizations.* Poster presented at the United States Conference on Teaching Statistics, Online.

[25] Brondos Fry, E., Legacy, C.†, **Zieffler, A.**, & Le, L. (2020, October). *The state of computing in introductory statistics.* Poster presented at Women in Statistics & Data Science Conference, Pittsburgh, PA, United States. https://ww2.amstat.org/meetings/wsds/2020/onlineprogram/ViewPresentation.cfm?file=308508.pdf

[24] Legacy, C.†, **Zieffler, A.**, Fry, E., & Le, L. (2020, February). *The state of computing in introductory statistics.* Poster presented at Graduate Student Research Day, University of Minnesota, Minneapolis, MN.

[23] Brown, J.†, delMas, R., & **Zieffler, A.** (2018, July). *Statistical problem-solving cycles while solving simulation tasks during guided interviews.* Poster presented at the Joint Statistical Meetings, Vancouver, BC.

[22] Brown, J.†, delMas, R., & **Zieffler, A.** (2018, March). *Statistical problem-solving cycles while solving simulation tasks during guided interviews.* Poster presented at University of Minnesota's Department of Educational Psychology Graduate Student Research Day, Minneapolis, MN.

[21] Huberty, M.[†], Justice, N., **Zieffler, A.**, & delMas, R. (2018, March). *A catalyst to understanding secondary mathematics teachers' knowledge and transitional conceptions of statistical models.* Poster presented at the CEHD Research Day, University of Minnesota, Minneapolis, MN.

[20] Justice, N.[†], **Zieffler, A.**, & Garfield, J. (2017, March). *An investigation of statistics graduate students? Communities of practice for teaching.* Poster presented at the University of Minnesota Department of Educational Psychology Graduate Student Research Day, Minneapolis, MN.

[19] Vinces, M., Stanhope, L., Belitsky, J., Brodfuehrer, P., Davis, G., Haque, T., Le, L.[†], Overvoorde, P., Preest, M., Umbanhower, C., Jr., **Zieffler, A.**, & Ziegler, L.[†] (2015, November). *Development of BioSQuaRE, an instrument, an instrument to assess undergraduate biological quantitative skills.* Poster presented at the Crossing Boundaries: Transforming STEM Education, Network for Academic Renewal STEM Conference, Seattle, WA.

[18] Davis, G., Stanhope, L., Belitsky, J., Brodfuehrer, P., Haque, T., Le, L.[†], McFadden, C., Overvoorde, P., Preest, M., Umbanhower, C., Jr., Vinces, M., **Zieffler, A.**, & Ziegler, L.[†] (2015, June). *Defining the quantitative skills of incoming biology students.* Poster presented at the HHMI Constellation Studio A meeting, Chevy Chase, MD.

[17] delMas, R., Garfield, J., **Zieffler, A.**, & Fry, E.[†] (2015, May). *e-ATLAS: Evaluation and assessment of teaching and learning about statistics.* Poster presented at the United States Conference on Teaching Statistics, State College, PA.

[16] Garfield, J., delMas, R., **Zieffler, A.**, Fry, E. B.[†], & Pearl, D. (2015, January). *Evaluation and assessment of teaching and learning about statistics (e-ATLAS).* Poster presented at the Joint Mathematics Meeting, San Antonio, TX.

[15] Galos, D.[†], Hurtado, G., Marczak, M., Lim, S. S.[†], **Zieffler, A.**, Alviz, K.[†], & Rajasenkar, N. (2014, November). *Physical activity And screen time among students receiving SNAP-Ed: A latent-class analysis.* Poster presented at the American Public Health Association Annual Meeting and Exposition, New Orleans, LA.

[14] Le, L.[†], Ziegler, L.[†], & **Zieffler, A.** (2014, March). *Developing a quantitative skills assessment for incoming biology students.* Poster presented at Graduate Student Research Day, University of Minnesota, Minneapolis, MN.

[13] Peralta Torres, Y. E.[†], & **Zieffler, A.** (2014, March). *Do knowledge and beliefs matter? A profile of future primary mathematics teachers.* Poster presented at Graduate Student Research Day, University of Minnesota, Minneapolis, MN.

[12] Garfield, J., delMas, R. & **Zieffler, A.** (2013, January). *Collaborative research: The CATALST project, change agents for teaching and learning statistics.* Refereed poster presented at the Transforming Undergraduate Education in STEM: Building a Community to Transform Undergraduate STEM Education conference sponsored by the TUES division of the National Science Foundation, Washington, DC.

[11] Fry, E.[†], Garfield, J., delMas, R., & **Zieffler, A.** (2013, January). *e-ATLAS: Evaluation and assessment of teaching and learning about statistics.* Invited poster presented at the Joint Mathematics Meetings, San Diego, CA.

[10] Garfield, J., delMas, R., & **Zieffler, A.** (2012, January). *Evaluation and assessment of teaching and learning about statistics (e-ATLAS).* Invited poster presented at the Joint Mathematics Meetings, Boston, MA.

[9] Garfield, J., delMas, R., **Zieffler, A.**, Rossman, A., Chance, B., Holcomb & H., Cobb, G. (2012, January). *Change agents for teaching and learning statistics (CATALST).* Invited poster presented at the Joint Mathematics Meeting, Boston, MA.

[8] Garfield, J., **Zieffler, A.**, delMas, R., Park, J., Bjornsdottir, A.[†], & Isaak, R.[†] (2011, April). *Assessing what students really understand about statistical inference.* Poster presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

[7] delMas, R., Garfield, J., **Zieffler, A.**, Le, L.[†], Isaak, R.[†], Park, J.[†], & Ziegler, L.[†] (2011, January). *A different flavor of introductory statistics: Teaching students to really cook.* Poster presented at The Joint Mathematics Meetings, New Orleans, LA.

[6] Garfield, J., delMas, R., **Zieffler, A.**, Le, L.[†], Isaak, R.[†], & Ziegler, L.[†] (2011, January). *A different flavor of introductory statistics: Teaching students to really cook.* Invited poster presented at the AAAS and NSF sponsored CCLI-TUES Principal Investigators' conference, Transforming Undergraduate Education in STEM: Making and Measuring Impacts, Washington, DC.

[5] Garfield, J., delMas, R., & **Zieffler, A.** (2010, May). *Building a statistics course on model–eliciting activities.* Poster presented at the annual meeting of the American Educational Research Association, Denver, CO.

[4] Garfield, J., delMas, R., & **Zieffler, A.** (2010, January). *Change agents for teaching and learning statistics.* Poster presented at the Joint Mathematics Meetings, San Francisco, CA.

[3] delMas, R., Garfield, J., & **Zieffler, A.** (2008, January). *Adapting and Implementing Innovative Materials in Statistics Courses (AIMS).* Poster presented at the Joint Mathematics Meetings, San Diego, CA.

[2] **Zieffler, A.** (2005, July). *Correlation is not causation: Instructor perceptions of student understanding & misconceptions in bivariate data.* Poster presented at the United States Conference on Teaching Statistics, Columbus, OH.

[1] **Zieffler, A.** (2005, July). *Correlation is not causation: Instructor perceptions of student understanding & misconceptions in bivariate data.* Poster presented at The Fourth International Research Forum on Statistical Reasoning, Thinking, and Literacy, Auckland, New Zealand.

External Research Funding

Collaborative Research: The Data Science WAV: Experiential Learning with Local Community Organizations. National Science Foundation funded October 1, 2019–September 30, 2022, $69,985, Zieffler, A. (PI). HDR DSC-1923700.

Defining the quantitative and computational skills of incoming science students. A Science Education Program Award to Macalester College as a lead institution for a collaboration between Bryn Mawr, Oberlin, St. Olaf, Lewis and Clark, Harvey Mudd, Claremont-McKenna Colleges, and the University of Minnesota. Howard Hughes Medical Initiative funded 2013–2016, $250,000, Overvoorde, P. (PI). Grant #520076788.

Collaborative Research: Evaluation and assessment of teaching and learning about statistics (e-ATLAS). National Science Foundation funded June 1, 2011–May 31, 2013, $91,970, Garfield, J., Pearl, D., delMas, R., & Zieffler, A. (PIs). DUE-1044812 & 1043141.

Collaborative research: The CATALST project, Change Agents for Teaching and Learning STatistics. National Science Foundation funded August 2008–July 2011, $299,974, Garfield, J., delMas, R., & Zieffler, A. (PIs). DUE-0814433.

National statistics teaching practice survey: Instrument development. National Science Foundation funded July 2008–June 2011, $71,887, Garfield, J., delMas, R., & Zieffler, A. (PIs). DUE-0808862.

Internal Research Funding

CATALST e-textbook. CEHD Incentive Funds, Summer 2012, Zieffler, A.

Validation study of assessments of statistical learning outcomes. Indirect Cost Recovery Award, March 2011, Garfield, J., delMas, R., & Zieffler, A.

Developing materials to propose a national center for evaluation of statistics curriculum projects. Indirect Cost Recovery Award, Summer 2010, Zieffler, A., Garfield, J., & delMas, R.

Adapting the Statistics Teaching Inventory for online or hybrid classes. Indirect Cost Recovery Award, Summer 2010, Everson, M., delMas, R., Zieffler, A., Garfield, J.

Evaluation Projects

Student engagement in statistics using technology: Making data based decisions. A Division of Undergraduate Education, National Science Foundation award funded April, 2017–April, 2020, $300,000, S. Kuiper and R. Sturdivant (PIs). Grant # DUE-1712475. Grant evaluator.

Transforming data into knowledge: Curricular innovations in the era of big data. A Science Education Program Award to Macalester College, Howard Hughes Medical Initiative funded September, 2012–August, 2016, $1,300,000, P. Overvoorde (PI and Program Director). Grant # 5007550. Grant evaluator.

CCLI Phase II: Building a Community around modeling, statistics, computation, and calculus. National Science Foundation funded December 2009–November 2012, $424,185, D. Kaplan (PI). DUE-0920350. Grant evaluation team.

Creating a teaching and learning infrastructure for introductory statistics redesign. National Science Foundation funded July 2008–June 2010, $142,615, R. Gould (PI). DUE-0737126. Grant evaluation team.

Collaborative Research: INCIST: Improving National acceptance of computationally intensive statistical techniques. National Science Foundation funded September 2009–August 2012, $350,000, W. West and R. Woodard (PIs). DUE-0817397. Grant evaluation team.

Rational number project: Instructional module for fractions, decimals and percents. National Science Foundation funded October 2006 – September 2009, $554,418, K. Cramer & T. Wyberg (PIs). DUE-0628005. Grant evaluator.

Advisees

2021–Current **Regina Lisinker**, *Educational Psychology*, MA

2019–Current **Chelsey Legacy**, *Educational Psychology*, PhD

2018–Current **Vimal Rao**, *Educational Psychology*, PhD

2014–Current **Michael Huberty**, *Educational Psychology*, PhD

2014–2021 **Jonathan Brown**, *Educational Psychology*, PhD
Thesis: Student Understanding of the Hypothetical Nature of Simulations in Introductory Statistics

2016–2020 **Rita Sandidge**, *Educational Psychology*, PhD
Thesis: Cultural and Social Identity and the Role of Insurance Status in Mental Health Service Utilization: An Exploratory Data Analysis

2015–2019 **Ethan Brown**, *Educational Psychology*, PhD
Thesis: Growing Certain: Students' Mechanistic Reasoning about the Empirical Law of Large Numbers

2011–2017 **Elizabeth Fry**, *Educational Psychology*, PhD
Thesis: Introductory Statistics Students' Conceptual Understanding of Study Design and Conclusions

2012–2017 **Nicola Justice**, *Educational Psychology*, PhD
Thesis: Statistics Graduate Students' Professional Development for Teaching: A Communities of Practice Model

2011–2017 **Laura Le**, *Educational Psychology*, PhD
Thesis: Assessing the Development of Students' Statistical Thinking: An Exploratory Study

2013–2016 **Anelise Sabbag**, *Educational Psychology*, PhD
Thesis: Examining the Relationship Between Statistical Literacy and Statistical Reasoning

2011–2015 **Alison Phillips**, *Educational Psychology*, PhD
Thesis: Quantifying Quality: The Effects of Score Transformation Method and School Demographics on School Rankings Under the Elementary and Secondary Education Act

2013–2016 **Anelise Sabbag**, *Educational Psychology*, MA

Editorial Service

2012–Current **Co-Editor**, *Technology Innovations in Statistics Education*

2010–2012 **Associate Editor**, *Journal of Statistics Education*

Ongoing **Journal Reviewer**, *The American Statistician; Applied Psychological Methods; Educational Researcher; Educational Studies in Mathematics; Journal of Engineering Education; Journal of Statistics Education; PLOS ONE; Statistics Education Research Journal; Technology Innovations in Statistics Education*

Service to the Department, College, and University

2021 **Committee Member**, *QME Search Committee, Department of Educatinal Psychology*

2021–2022 **Committee Member**, *Mathematics Education Search Committee, Department of Curriculum and Instruction*

2020 **Committee Member**, *Antiracist Action Council, Department of Educational Psychology*

2020 **Committee Member**, *Mathematics Education Search Committee, Department of Curriculum and Instruction*

2019–2022 **Committee Member**, *Faculty and P&A Development and Recognition Committee, Department of Educational Psychology*

2018 **Committee Member**, *Departmental Task Force on P&A Voting Rights*

2017–2018 **Committee Member**, *Core Values Committee, Department of Educational Psychology*

2017 **Representative**, *Graduate Advisory Committee, Department of Educational Psychology*

2016–2018	**Committee Member**, *QME Search Committee, Department of Educational Psychology*
2014–Current	**Faculty Coordinator**, *College in the Schools, University of Minnesota*
2016–2017	**Committee Member**, *Diversity Committee, Department of Educational Psychology*
2014–2016	**Selection Committee**, *Outstanding Contributions to Postbaccalaureate, Graduate, and Professional Education, University of Minnesota*
2013–2014	**Selection Committee**, *Morse Alumni Undergraduate Teaching Award, University of Minnesota*
2011–2014	**Representative**, *CEHD Curriculum Committee*
2012	**Representative**, *University of Minnesota Senate*
2013–2017	**Alternate Representative**, *University Senate, University of Minnesota*

Service to the Profession

2021–Current	**Research Advisory Board Member**, *Consortium for the Advancement of Undergraduate Statistics Education*
2021–Current	**Committee Member**, *ASA Section on Statistics and Data Science Education Mentoring Program*
2020–Current	**Mentor**, *ASA Section on Statistics and Data Science Education Mentoring Program*
2020	**Co-Chair**, *Education & Workforce Working Group, South Big Data innovation Hub. https://southbigdatahub. org/*
2018–Current	**Organizer**, *StatChat: An informal but informative get-together of local statistics educators in the Twin-Cities*
2017	**External Reviewer**, *Statistics and Data Sciences Program, St. Olaf College*
2016–2018	**Committee Member**, *Envisioning the Data Science Discipline: The Undergraduate Perspective Study, National Academies of Sciences, Engineering, and Medicine*
2012–2013	**Chair**, *Special Interest Group on Statistics Education, Mathematical Association of America*
2011–2012; 2013–2014	**Executive Committee**, *Special Interest Group on Statistics Education, Mathematical Association of America*
2007–2014	**Research Advisory Board Member**, *Consortium for the Advancement of Undergraduate Statistics Education*
2013–2014	**Session Organizer**, *9th International Conference on Teaching Statistics*
2013	**Scientific Committee**, *The International Collaboration for Research on Statistical Reasoning, Thinking, and Literacy (SRTL-8)*
2007	**Conference Referee**, *IASE/ICMI Joint Study Conference*
2009	**Conference Referee**, *8th International Conference on Teaching Statistics*
2011	**Grant Reviewer**, *Social Sciences and Humanities Research Council, Canada*