SONJA D. WINTER

University of Missouri
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Columbia, MO 65211

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EXPERIENCE

Educational, School & Counseling Psychology, University of Missouri
Assistant Professor
August 2023 - current
Columbia, Missouri

Missouri Prevention Science Institute, University of Missouri
Postdoctoral Fellow
August 2021- July 2023
Columbia, Missouri

Methodology and Statistics, Utrecht University
Researcher
January 2014 - June 2016
Utrecht, the Netherlands

Winter Statistics
Owner, Consultant
September 2013 - June 2016
Amsterdam, the Netherlands

EDUCATION

University of California, Merced *2016-2021*
Ph.D., Psychological Sciences
Area of Study: Quantitative Methods, Measurement, and Statistics
Advisor: Associate Professor Sarah Depaoli
Dissertation: *Advanced Methods for Detecting Specification Issues in Bayesian Structural Equation Modeling.*

Utrecht University, the Netherlands *2011-2013*
M.Sc. (Cum Laude), Psychology

Utrecht University, the Netherlands *2008-2011*
B.Sc. (with honours), Psychology

PUBLICATIONS

Peer-Reviewed Articles

1. Depaoli, S., **Winter, S. D.**, & Liu, H. (in press). Under-Fitting and Over-Fitting: The Performance of Bayesian Model Selection and Fit Indices in SEM. *Structural Equation Modeling: A Multidisciplinary Journal.*

2. Parmenter, J. G. & **Winter, S. D.** (2023). Inequity within the LGBTQ+ Community as a Distal Stressor: An Extension of Minority Stress Theory. *Psychology of Sexual Orientation and Gender Diversity.*

3. Merkle, E., Ariyo, O., **Winter, S. D.**, & Garnier-Villarreal, M. (2023). Opaque Prior Distributions in Bayesian SEM. *Methodology, 19*(3), 228-255. doi:10.5964/meth.11167

4. **Winter, S. D.**, & Depaoli, S. (2023). Illustrating the Value of Prior Predictive Checking for Bayesian Structural Equation Modeling. *Structural Equation Modeling: A Multidisciplinary Journal.* doi:10.1080/10705511.2022.2164286

5. **Winter, S. D.**, & Depaoli, S. (2022). Detecting Prior-Data Disagreement in Bayesian Structural Equation Modeling. *Structural Equation Modeling: A Multidisciplinary Journal*. doi:10.1080/10705511.2022.2039066

6. **Winter, S. D.**, & Depaoli, S. (2022). Sensitivity of Bayesian Model Fit Indices to the Prior Specification of Latent Growth Models. *Structural Equation Modeling: A Multidisciplinary Journal 29*(5), 667-686. doi:10.1080/10705511.2022.2032078

7. **Winter, S. D.**, & Depaoli, S. (2022). Performance of Model Fit and Selection Indices for Bayesian Structural Equation Modeling with Missing Data. *Structural Equation Modeling: A Multidisciplinary Journal, 29*(4), 531-549. doi:10.1080/10705511.2021.2018656

8. van de Schoot, R., **Winter, S. D.**, Griffioen, E., Grimmelikhuijsen, S., Arts, I., Veen, D., Grandfield, E. M., & Tummers, L. G. (2021). The Use of Questionable Research Practices to Survive in Academia: Expert Elicitation, Prior-Data Conflicts, Bayes Factors for Replication Effects, and the Bayes Truth Serum. *Frontiers in Psychology: Quantitative Psychology & Measurement, 12*, 621547 doi:10.3389/fpsyg.2021.621547

9. Arroyo, A. C., **Winter, S. D.**, Depaoli, S., & Zawadzki, M. J. (2021). Illuminating Differences in The Psychological Predictors of Academic Performance for First- And Continuing-Generation Students. *Journal of Educational and Psychological Research, 3*(2), 234-246.

10. Depaoli, S., **Winter, S. D.**, & Visser, M. (2020). The Importance of Prior Sensitivity Analysis in Bayesian Statistics: Demonstrations using an Interactive Shiny App. *Frontiers in Psychology: Quantitative Psychology & Measurement, 11*, 3271. doi:10.3389/fpsyg.2020.608045

11. Smid, S. C., & **Winter, S. D.** (2020). Dangers of the Defaults: A Tutorial on the Impact of Default Priors when using Bayesian SEM with Small Samples. *Frontiers in Psychology: Quantitative Psychology & Measurement, 11*, 611963. doi:10.3389/fpsyg.2020.611963

12. **Winter, S. D.**, & Depaoli, S. (2020). An Illustration of Bayesian Approximate Measurement Invariance with Longitudinal Data and a Small Sample Size. *International Journal of Behavioral Development, 44*(4), 371-382. doi:10.1177/0165025419880610

13. Depaoli, S., **Winter, S. D.**, Lai, K., & Guerra-Peña, K. (2019). Implementing continuous non-normal skewed distributions in latent growth mixture modeling: An assessment of specification errors and class enumeration. *Multivariate Behavioral Research, 54*(6), 795-821. doi:10.1080/00273171.2019.1593813

14. Hoorn, J. F., & **Winter, S. D.** (2018). Here comes the bad news: Doctor robot taking over. *International Journal of Social Robotics, 10*, 519-535. doi:10.1007/s12369-017-0455-2

15. Tiemensma, J., Depaoli, S., **Winter, S. D.**, Felt, J. M., Rus, H., & Arroyo, A. C. (2018). The Performance of the IES-R for Latinos and non-Latinos: Assessing Measurement Invariance. *PLoS ONE, 13*(4), e0195229. doi:10.1371/journal.pone.0195229

16. van de Schoot, R., Sijbrandij, M., Depaoli, S., **Winter, S. D.**, & van Loey, N. (2018). Bayesian PTSD-Trajectory Analysis with Informed Priors Based on a Systematic Literature Search and Expert Elicitation. *Multivariate Behavioral Research, 53*(2), 267-291. doi:10.1080/00273171.2017.1412293

17. **Winter, S. D.**, Depaoli, S., & Tiemensma, J. (2018). Assessing differences in how the CushingQoL is interpreted across countries: Comparing patients from the U.S. and the Netherlands. *Frontiers in Endocrinology, 9*, 368.doi:10.3389/fendo.2018.00368

18. van de Schoot, R., Sijbrandij, M., **Winter, S. D.**, Depaoli, S., & Vermunt, J. K. (2017). The GRoLTS-Checklist: Guidelines for reporting on latent trajectory studies. *Structural Equation Modeling: A Multidisciplinary Journal, 24*(3), 451-467. doi:10.1080/10705511.2016.1247646

19. van de Schoot, R., **Winter, S. D.**, Ryan, O., Zondervan-Zwijnenburg, M. & Depaoli, S. (2017). A systematic review of Bayesian articles in psychology: The last 25 years. *Psychological Methods, 22*(2), 217-239. doi:10.1037/met0000100

20. Konijn, E. A., van der Schoot, R., **Winter, S. D.**, & Ferguson, C. J. (2015). Possible solution to publication bias through Bayesian statistics, including proper null hypothesis testing. *Communication Methods and Measures, 9*(4), 280-302. doi:10.1080/19312458.2015.1096332

Book Chapters

1. Depaoli, S., Kaplan, D., & **Winter, S. D.** (2023). Foundations and extensions in Bayesian structural equation modeling. In Hoyle, R. (2nd Ed.) *Handbook of structural equation modeling*. New York, NY: The Guilford Press.

2. van de Schoot, R., Griffioen, E., & **Winter, S. D.** (2021). Dealing with imperfect elicitation results. In Hanea, A.M., Nane, G.F., Bedford, T., French, S. (Eds.), *Expert Judgment in Risk and Decision Analysis*. Basel: Springer International Publishing.

3. van de Schoot, R., Veen, D., Smeets, L., **Winter, S. D.**, & Depaoli, S. (2020). A Tutorial on Using The Wambs Checklist to Avoid The Misuse of Bayesian Statistics. In R. van de Schoot & M. Miočević (Eds.), *Small Sample Size Solutions: A guide for applied researchers and practitioners* (pp. 30–49). London: Routledge. doi:10.4324/9780429273872-4

Web Applications

1. Depaoli, S., **Winter, S. D.**, & Visser, M. (2020). The Importance of Prior Sensitivity Analysis in Bayesian Statistics: Demonstrations using an Interactive Shiny App. ucmquantpsych.shinyapps.io/sensitivityanalysis.

2. Smid, S.C., & **Winter, S. D.** (2020). Shiny App: The Impact of Prior Distributions in a Bayesian Latent Growth Model. utrecht-university.shinyapps.io/impact_of_prior_distributions.

3. Behrens, L., **Winter, S. D.**, & van de Schoot, R. (2018). Shiny App: FBI: First Bayesian Inference. utrecht-university.shinyapps.io/bayesian_estimation.

PAPERS UNDER REVIEW

1. Bonifay W., **Winter, S. D.**, Skoblow, H., & Watts. A. (revise & resubmit). Good fit is not a Sufficient Indicator of Replication Success. [Invited contribution to special issue of *Assessment* on "Assessment, Measurement, and Registered Replication."]

2. **Winter, S. D.**, Eddy, C. L., Yang, W., Bonifay, W. (submitted). Psychometric Evaluation of the Teacher Stress Inventory – Short Form using Bayesian Item Response Theory.

PRESENTATIONS

* denotes presenter

Invited Presentations

1. **Winter, S. D.*** (2023, December). *Teaching Bayesian Methods in Psychology*. Invited panel organized by the Section on Bayesian Education Research and Practice, International Society for Bayesian Analysis. A recording of this panel can be found here: Zoom Recording

2. **Winter, S. D.*** (2022, October). *Returning meaning to 'good fit': Constraining the bifactor model via Bayesian prior specification*. Invited talk presented at the Quantitative Psychology Speaker Series at the University of California, Davis.

3. **Winter, S. D.***, Bonifay, W., & Watts, A. (2022, September). *Prior Specification in Bayesian Estimation Affects a Model's Fitting Propensity*. Invited talk presented at the Quantitative Psychology seminar at the University of Missouri, Columbia, MO.

4. McCall, C* & **Winter, S. D.*** (2022, September). *Using intersectional research methods to examine intervention efficacy*. Invited roundtable Discussion presented at the Missouri Prevention Science Institute (MPSI) seminar.

5. **Winter, S. D.*** (2022, April). *Assessing prior-data disagreement in Bayesian SEM.* Invited webinar presented at Young Statisticians Europe (YSE). A recording of this webinar can be found here: https://www.youtube.com/watch?v=Cuwhzd-8z4k

6. **Winter, S. D.*** (2022, March). *Introduction to Bayesian Analysis.* Invited talk presented at the College of Education and Human Development Lunch Hour, University of Missouri, MO.

7. **Winter, S. D.*** (2021, November). *Basic Bayes.* Invited talk presented at the Missouri Prevention Science Institute (MPSI) seminar.

8. **Winter, S. D.*** (2021, October). *Exploring Three Methods for Detecting Prior-Data Disagreement in Bayesian SEM.* Invited talk presented at the Quantitative Psychology seminar at the University of Missouri, Columbia, MO.

9. **Winter, S. D.*** (2017, April). *Bayesian Approximate Measurement Invariance for Second-Order Latent Growth Models.* Invited talk presented at The University of California, Merced, CA.

10. Depaoli, S.* & **Winter, S. D.*** (2016, November). *A Systematic Review of Bayesian Papers in Psychology: The Last 25 Years.* Invited talk presented at The University of California, Merced Quantitative Psychology Colloquium, Merced, CA.

Invited Workshops

1. **Winter, S. D.*** (2022, March). *Creating Dynamic Reports from your Shiny App.* Invited talk presented at R-Ladies St. Louis. A recorded version of this webinar can be found here: https://www.youtube.com/watch?v=MvGAstDzLJk

2. **Winter, S. D.***, and Smid, S. C.* (2020, July). *Dangers of Default Priors.* Invited post-conference workshop presented at S4, Utrecht, the Netherlands. (Conference canceled)

3. **Winter S. D.*** & Coburn, K.* (2019, April). *Creating an Interactive Shiny App to Share Your Research Findings.* One-day workshop presented at The University of California, Merced, CA. doi:10.17605/OSF.IO/69J37.

4. **Winter S. D.*** (2015, June). *Statistics 101.* Workshop presented at DevOps Days Amsterdam, the Netherlands.

Conference Presentations

1. **Winter, S. D.*** (2023, August). *Goodness-of-fit and Theory Corroboration Through Informative Prior Specifications.* In W. Bonifay (chair) *High Risk, High Reward: Methods for Rigorous Testing of Psychological Theories.* Talk presented at the American Psychological Association (APA) Convention, Washington, DC.

2. **Winter, S. D.*** & Bonifay, W. (2023, April). *Prior Specification in Bayesian Estimation Affects a Model's Fitting Propensity.* Talk presented at the National Council on Measurement and Education (NCME) Conference, Chicago, Il.

3. **Winter, S. D.***, Sinval, J., & Merkle, E. (2023, April). *Comparing Priors for Estimating Sparse Ordinal Indicators in Bayesian Factor Analyses.* Talk presented at the National Council on Measurement and Education (NCME) Conference, Chicago, Il.

4. Bonifay W.*, **Winter, S. D.**, & Watts, A. (2023, January). *Better than good fit: Methods for more insightful measurement model evaluations.* Talk presented at the Hawaii International Conference on Education (HICE), Honolulu, Hawaii.

5. **Winter, S. D.***, Bonifay, W., & Watts, A. (2022, July). *Bayesian prior specification and model fitting propensity.* Talk presented at the International Meeting of the Psychometric Society (IMPS), Bologna, Italy.

6. McCall, C* & **Winter, S. D.*** (2022, July). *Using intersectional research methods to examine intervention efficacy.* Roundtable Discussion presented at the Annual Conference of the International School Psychology Association (ISPA), Leuven, Belgium.

7. **Winter, S. D.*** & Depaoli, S. (2022, April). *Detecting Misspecification in Latent Growth Models with Bayesian Fit Indices.* E-board presented at the National Council on Measurement and Education (NCME) Conference, San Diego, CA.

8. **Winter, S. D.*** & Depaoli, S. (2021, July). *Detecting Misspecification in Latent Growth Models with Bayesian Fit Indices.* Talk presented at the International Meeting of the Psychometric Society (IMPS).

9. **Winter, S. D.*** & Depaoli, S. (2021, May). *Classification and Estimation Accuracy of Growth Mixture Models with Class-Predicting Covariates: Frequentist and Bayesian Approaches.* Poster presented at the APS Virtual Convention.

10. Arroyo, A. C.*, **Winter, S. D.**, Depaoli S., & Zawadski, M. (2019, May). *Psychosocial Traits and Academic Performance: First- and Continuing-generation College Students.* Poster presented at the 31th APS Annual Convention, Washington, DC.

11. Smid, S. D.* & **Winter, S. D.** (2019, May). The Impact of Default Priors in Bayesian SEM with Small Samples. In R. van de Schoot (chair) *Risks of Default Priors in Bayesian Structural Equation Models with Small Samples and Two Approaches on How to Avoid Those Risks.* Talk presented at the 31st APS Annual Convention, Washington, DC.

12. **Winter, S. D.*** & Smid, S. (2019, May). Demonstration of an Online Educational Application on Bayesian Default Priors. In R. van de Schoot (chair) *Risks of Default Priors in Bayesian Structural Equation Models with Small Samples and Two Approaches on How to Avoid Those Risks.* Talk presented at the 31st APS Annual Convention, Washington, DC.

13. **Winter, S. D.*** & Lek, K. M. (2018, July). *Bayesian Approximate Measurement Invariance: For Those Times When You Have Too Little or Too Much Data.* Talk presented at VIII European Congress of Methodology, Jena, Germany.

14. **Winter, S. D.*** & Depaoli S. (2018, May). *Measurement Invariance for Second-Order Latent Growth Models: Frequentist and Bayesian Approaches.* Poster presented at the 30th APS Annual Convention, San Francisco, CA.

15. **Winter, S. D.*** & Depaoli S. (2017, March). *Bayesian Approximate Measurement Invariance As A Viable Alternative to Frequentist Methods.* Poster presented at The University of California, Merced Psychology Symposium, Merced, CA.

TEACHING EXPERIENCE

Instructor of Record
ESC PS 8082: Foundations of Educational & Psychological Measurement	*Fall 2023*
ESC PS 9710: Structural Equation Modeling	*Spring 2023*

Guest Lectures
ESC PS 8850: Quantitative Foundations in Educational Research - Logistic Regression	*Fall 2023*
ESC PS 8655: Item Response Theory - Estimating Person Parameters	*Spring 2022*
PSY 202B: Advanced Psychological Statistics II - Introduction to M*plus*	*Spring 2021*
PSY 202B: Advanced Psychological Statistics II - Multilevel modeling with M*plus*	*Spring 2021*
PSY 010: Analysis of Psychological Data - One-Sample *t*-test	*Spring 2019*
PSY 010: Analysis of Psychological Data - One-way ANOVA	*Spring 2019*
PSY 010: Analysis of Psychological Data - Independent Samples *z*-test	*Fall 2017*

Graduate Teaching Assistant
PSY 202B: Advanced Psychological Statistics II, graduate level Psychology course	*Spring 2021*
PSY 202A: Advanced Psychological Statistics I, graduate level Psychology course	*Fall 2019, 2020*
PSY 105: Advanced Research Methods in Psychology	*Spring 2017*
PSY 010: Analysis of Psychological Data	*Fall 2017, 2018, Spring 2019*
PSY 015: Research Methods in Psychology	*Fall 2016, Spring 2018, 2020*

Laboratory Instructor
PSY 010L: Analysis of Psychological Data	*Fall 2017, 2018, Spring 2019*

SERVICE

International & National
Organizer, Symposium: Estimating PTSD Trajectories, Utrecht, The Netherlands	*2015*

University & Department
Statistical Consultant, Missouri Prevention Science Institute	*2021-2022*
Moderator, program Twitter account: @UCM_QuantPsych (300+ followers)	*2018-2021*
Mentor, GradEXCEL Peer Mentor Program, Graduate Division	*2019-2020*
Member, Graduate Student Survey Committee for Graduate Program Review	*2018*
Student Representative, Quantitative Psychology Open-Rank Job Search Committee	*2018*

Ad Hoc Reviewer
Journals	*Psychological Methods, Structural Equation Modeling: A Multidisciplinary Journal, Behavior Research Methods, British Journal of Mathematical and Statistical Psychology, Educational and Psychological Measurement, European Journal of Psychological Assessment, Communications in Statistics - Simulation and Computation, AERA Open, The European Journal of Psychotraumatology* (special issue on Bayesian Statistics), *Journal of Media Psychology, Prevention Science.*

FELLOWSHIPS & AWARDS

Society of Multivariate Experimental Psychology (SMEP)

Dissertation Research Award	*2021*

University of California, Merced

Will Shadish Graduate Student Fellowship (for research and teaching excellence)	*2020*
Psychological Sciences Outstanding Graduate Student	*2020-2021*
Psychological Sciences Research Support Award	*2020*
Psychological Sciences William R. Shadish Award for Leadership and Service	*2019-2020*
Psychological Sciences Research Dissemination Award	*2018-2021*
Psychological Sciences Jennifer Mendiola Travel Award	*2018*
Psychological Sciences Summer Support Fellowship	*2017-2021*
Psychological Sciences Graduate Group Recruitment Fellowship	*2016*
Graduate Student Association Travel Award	*2018*

Journals

Article of the Year Award: Communication Methods and Measures Journal, for:	*2015*
Possible solution to publication bias through bayesian statistics, including proper null hypothesis testing.	

PROFESSIONAL DEVELOPMENT

Missouri Prevention Science Institute (Dr. Chynna McCall), Equitable Endeavor for Everyone	*2021-2022*
A Meeting of Methodologies: Advancing Methods Development, Application, and Teaching in Psychology, the Behavioural, and Social Sciences	*2020*
The Center for Engaged Teaching and Learning, UC Merced, three-part seminar on remote instruction	*2020*
Professional Seminar on Teaching, UC Merced, a semester-long course on evidence-based teaching strategies, developing a syllabus, and effective communication	*2018*
The Center for Engaged Teaching and Learning, UC Merced, Fundamentals for TAs in Higher Education Certificate	*2018*
Women in Analytics Conference, Facebook HQ, one of 300 attendees out of 1500 applicants	*2018*

PROFESSIONAL AFFILIATIONS

American Psychological Association (APA)
American Statistical Association (ASA)
International Society for Bayesian Analysis (ISBA)
National Council on Measurement in Education (NCME)
Psychometric Society

SKILLS

Languages	Dutch, English
Software	R, M*plus*, BUGS/JAGS, Stan, HLM, SPSS, Git, Qualtrics
Coding	R, Python, HTML, css, LATEX, Markdown
Select Statistics	Bayesian methods, Structural Equation Modeling, Item Response Theory, Multi-level Modeling, Measurement and Measurement Invariance,
	Finite Mixture Modeling, Longitudinal Data Analysis