

Mijke Rhemtulla

CONTACT INFORMATION	Department of Psychology University of California, Davis Young Hall, Room 102E One Shields Avenue, Davis CA 95616	p: 530 400 5397 e: mrhemtulla@ucdavis.edu w: psychology.ucdavis.edu/people/mijke
RESEARCH INTERESTS	Structural equation modeling; Methods and designs for missing data; Latent variable versus network models of psychological constructs; Early childhood cognitive development	
ACADEMIC APPOINTMENTS	<i>Associate Professor, Quantitative Psychology</i> University of California, Davis, Department of Psychology	07/2018 - Present
	<i>Assistant Professor, Quantitative Psychology</i> University of California, Davis, Department of Psychology	07/2016 - 06/2018
	<i>Assistant Professor, Psychological Methods</i> University of Amsterdam, Department of Psychology	07/2013 - 06/2016
	<i>Banting Postdoctoral Fellow, Psychological Methods</i> University of Kansas, Center for Research Methods and Data Analysis	06/2011 - 05/2013
	<i>Postdoctoral Fellow, Psychological Methods</i> University of Kansas, Center for Research Methods and Data Analysis	08/2010 - 05/2011
	<i>Visiting Scholar</i> University of Texas at Austin, Department of Psychology	01/2010 - 06/2010
EDUCATION	<i>PhD, Developmental Psychology</i> University of British Columbia Minor: Quantitative Methods	06/2005 - 11/2010
	<i>MA, Developmental Psychology</i> University of British Columbia	09/2003 - 05/2005
	<i>BA (Honours), Psychology</i> University of Alberta	09/1997 - 05/2002
GRANTS AND FELLOWSHIPS	<i>Marie Curie Career Integration Grant</i> European Research Council (€100,000) Project Title: Application of model selection principles to distinguish network and latent variable models of psychological constructs	03/2014 - 02/2017
	<i>Banting Postdoctoral Fellowship</i> Social Sciences and Humanities Research Council of Canada (\$140,000) Project Title: Planned missing data designs for developmental research	05/2011 - 04/2013
	<i>SSHRC Postdoctoral Fellowship (declined)</i> Social Sciences and Humanities Research Council of Canada (\$76,000) Project Title: Gene by environment interactions affecting school readiness in early childhood	05/2011 - 04/2013

<i>Sir James Lougheed Award of Distinction</i> Alberta Scholarship Programs (\$20,000) Project Title: Infants' use of causal properties to individuate objects	09/2008 - 08/2009
<i>UBC Graduate Fellowship</i> University of British Columbia (\$17,000) Project Title: Preschoolers' use of shared proper names in inductive inference	09/2008 - 08/2009
<i>Pacific Century /UBC Graduate Fellowship (declined)</i> University of British Columbia (\$16,000) Project Title: Children's use of fictional character identity in inductive inference	09/2007 - 08/2008
<i>Canada Graduate Scholarship</i> Natural Sciences and Engineering Research Council of Canada (\$70,000) Project Title: Infants' use of syntactic cues for object individuation	09/2005 - 08/2007
<i>PGS-2 Graduate Scholarship</i> Natural Sciences and Engineering Research Council of Canada (\$34,600) Project Title: Children's acquisition of adjective placement rules	09/2003 - 08/2005

PEER-REVIEWED
ARTICLES

*graduate student first-author

Luck, S. J., Stewart, A. X., Simmons, A. M., & Rhemtulla, M. (in press). Standardized Measurement Error: A universal metric of data quality for averaged event-related potentials. *Psychophysiology*.

Sun, J*., Rhemtulla, M., & Vazire, S. (in press). Eavesdropping on missing data: What are university students doing when they miss experience sampling reports? *Personality and Social Psychology Bulletin* <https://doi.org/10.1177/0146167220964639>

Wang, Y. A.*, & Rhemtulla, M. (in press). Power analysis for parameter estimation in structural equation modeling: A discussion and tutorial. *Advances in Methods and Practices for Psychological Science*.

Schwaba, T.*, Rhemtulla, M., Hopwood, C., & Bleidorn, W. (2020) A facet atlas: visualizing networks that describe the blends, cores, and peripheries of personality structure. *PLoS ONE* <https://doi.org/10.1371/journal.pone.0236893>

Chen, L.*, Savalei, V., & Rhemtulla, M. (2020). Two-stage maximum likelihood approach for item-level missing data in regression. *Behavior Research Methods*. <https://doi.org/10.3758/s13428-020-01355-x>

de Bolt, M. C.*, Rhemtulla, M., & Oakes, L. M. (2020). Robust data and power in infant research: A case study of the effect of number of infants and number of trials in visual preference procedures. *Infancy*, 25(4), 393-419. <https://doi.org/10.1111/inf.12337>

van Bork, R.*, Rhemtulla, M., Waldorp, L., Kruis, J., Rezvanifar, S., & Borsboom, D. (2019). Latent variable models and networks: Statistical equivalence and testability. *Multivariate Behavioral Research*. Advanced Online Publication. doi: 10.1080/00273171.2019.1672515

Rhemtulla, M., van Bork, R., & Borsboom, D. (2020). Worse than measurement error: Consequences of inappropriate latent variable measurement models. *Psychological Methods*, 25, 30-45. doi:10.1037/met0000220

Wysocki, A. C.*, & Rhemtulla, M. (2019). On penalty parameter selection for estimating network

models. *Multivariate Behavioral Research*. <https://doi.org/10.1080/00273171.2019.1672516>

Williams, D.*, Rhemtulla, M., Wysocki, A., & Rast, P. (2019). On non-regularized estimation of psychological networks. *Multivariate Behavioral Research*, *54*(5), 719-750. <http://doi.org/10.1080/00273171.2019.15>

Grotzinger, A. D.*, Rhemtulla, M., de Vlaming, R., Ritchie, S. J., Mallard, T. T., Hill, W. D., Ip, H. F., Marioni, R., McIntosh, A. M., Deary, I. J., Koellinger, P. D., Harden, K. P., Nivard, M G., & Tucker-Drob, E. M. (2019). Genomic SEM provides insights into the multivariate genetic architecture of complex traits. *Nature Human Behavior*, *3*, 513-525. <https://doi.org/10.1038/s41562-019-0566-x>

Madole, J. W.*, Rhemtulla, M., Grotzinger, A. D., Tucker-Drob, E. M., & Harden, K. P (2019). Testing cold and hot cognitive control as moderators of a network of comorbid psychopathology symptoms in adolescence. *Clinical Psychological Science*, *7*, 701-718. doi: 10.1177/21677026198424

Seelke, A. M. H., Bond, J. M., Simmons, T. C., Stolzenberg, D., Rhemtulla, M., & Bales, K. L. (2018). Fatherhood alters gene expression within the MPOA. *Environmental Epigenetics*, *4*, dvy026. doi: 10.1093/eep/dvy026

Schott, E.*, Rhemtulla, M., & Byers-Heinlein, K. (2019). Should I test more babies? Solutions for transparent data peeking. *Infant Behavior and Development*, *54*, 166-176.

Epskamp, S., Fried, E. I., van Borkulo, C. D., Robinaugh, D. J., Marsman, M., Dalege, J., Rhemtulla, M., & Cramer, A. O. J. (2018). Investigating the utility of fixed-margin sampling in network psychometrics. *Multivariate Behavioral Research* doi:10.1080/00273171.2018.1489771

Fitch, D. T.*, Rhemtulla, M., & Handy, S. (2019). The relation of the road environment and bicycling attitudes to usual travel mode to school in teenagers. *Transportation Research Part A: Policy and Practice*, *123*, 35-53. doi: 10.1016/j.tra.2018.06.013

Rogers, F. D.*, Rhemtulla, M., Ferrer, E., & Bales, K. L. (2018). Longitudinal Trajectories and Inter-Parental Dynamics of Prairie Vole Biparental Care. *Frontiers in Ecology and Evolution*, *6*, 73. doi: 10.3389/fevo.2018.00073

van Bork, R.*, Wijzen, L., & Rhemtulla, M. (2017). Toward a causal interpretation of the common factor model. *Disputatio*, *9*, 47, 581-601.

van Bork, R.*, Epskamp, S., Rhemtulla, M., Borsboom, D., & van der Maas, H. L. J. (2017). What is the p-factor of psychopathology? Some risks of general factor modeling. *Theory and Psychology*, *27*, 759-773.

Savalei, V., & Rhemtulla, M. (2017). Normal theory GLS estimator for missing data: An application to item-level missing data and a comparison to two-stage ML. *Frontiers in Psychology*, *8*:767. doi: 10.3389/fpsyg.2017.00767

Savalei, V., & Rhemtulla, M. (2017). Normal theory two-stage estimator for models with composites when data are missing at the item level. *Journal of Educational and Behavioral Statistics*, *42*, 405-431.

Epskamp, S.*, Rhemtulla, M., & Borsboom, D. (2017). Generalized network psychometrics: Combining network and latent variable models. *Psychometrika*. doi: 10.1007/s11336-017-9557-x

Rhemtulla, M., & Hancock, D. (2016). Planned missing data designs for educational research. *Educational Psychologist*, *51*, 305-316.

- Rhemtulla, M. (2016). Population performance of SEM parceling strategies under measurement and structural model misspecification. *Psychological Methods, 21*, 348-368.
- Borsboom, D., Rhemtulla, M., Dolan, C., Cramer, A. O. J., Scheffer, M., & van der Maas, H. L. J. (2016). Kinds versus continua: A review of psychometric approaches to uncover the structure of psychiatric constructs. *Psychological Medicine, 46*, 1567-1579.
- Kossakowski, J. J.*, Epskamp, S., Kieffer, J. M., van Borkulo, C. D., Rhemtulla, M., & Borsboom, D. (2016). The application of a network approach to health-related quality of life: Introducing a new method for assessing HRQoL in healthy adults and cancer patients. *Quality of Life Research, 25*, 781-792.
- Rhemtulla, M., Fried, E. I., Aggen, S. H., Tuerlinckx, F., Kendler, K., & Borsboom, D. (2016). Network analysis of substance abuse and dependence symptoms. *Drug and Alcohol Dependence, 161*, 230-237. <http://dx.doi.org/10.1016/j.drugalcdep.2016.02.005>
- Costantini, G., Richetin, J., Borsboom, D., Fried, E. I., Rhemtulla, M., & Perugini, M. (2015). Development of indirect measures of conscientiousness: Combining a facets approach and network analysis. *European Journal of Personality, 29*, 548-567.
- Wu, W., Jia, F., Rhemtulla, M., & Little, T. D. (2016). Search for efficient complete and planned missing data designs for analysis of change. *Behavior Research Methods, 48*, 1047-1061.
- Boschloo, L., van Borkulo, C. D., Rhemtulla, M., Keyes, K. M., Borsboom, D., & Schoevers, R. A. (2015). The network structure of symptoms of the diagnostic and statistical manual of mental disorders. *PLoS ONE, 10(9)*: e0137621. doi:10.1371/journal.pone.0137621
- Howard, W. J.*, Rhemtulla, M., & Little, T. D. (2015). Using principal components as auxiliary variables in missing data estimation. *Multivariate Behavioral Research, 50*, 285-299.
- Wiers, R., Houben, K., Fadardi, J. S., van Beek, P., Rhemtulla, M., & Cox, W. M. (2015). Alcohol cognitive bias modification training for problem drinkers over the web. *Addictive Behaviors, 40*, 21-26.
- Rhemtulla, M., Savalei, V., & Little, T. D. (2016). On the asymptotic relative efficiency of planned missingness designs. *Psychometrika, 81*, 60-89.
- Rhemtulla, M., Jia, F.*, Wu, W., & Little, T. D. (2014). Planned missing designs to optimize the efficiency of latent growth parameter estimates. *International Journal of Behavioral Development, 38*, 5, 423-434.
- Garnier Villarreal, M.*, Rhemtulla, M., & Little, T. D. (2014). Two-method planned missing designs for longitudinal research. *International Journal of Behavioral Development, 38*, 5, 411-422.
- Jorgensen, T. D., Rhemtulla, M., Schoemann, A., McPherson, B., Wu, W., & Little, T. D. (2014). Optimal assignment methods in three-form planned missing data designs for longitudinal panel studies. *International Journal of Behavioral Development, 38*, 5, 397-410.
- Hogue, C., Pornprasertmanit, S., Fry, M. D., Rhemtulla, M., & Little, T. D. (2013). Planned Missing Data Designs for Spline Growth Models in Salivary Cortisol Research. *Measurement in Physical Education and Exercise Science, 17*, 310-325. doi: 10.1080/1091367X.2013.831766
- Hall, D. G., & Rhemtulla, M. (2013). Young children's use of contrast in word learning: The case of proper names. *Journal of Cognition and Development. doi: 10.1080/15248372.2013.784976*

- Little, T. D., & Rhemtulla, M. (2013). Planned missing data designs for developmental researchers. *Child Development Perspectives, 7*, 199-204. doi: 10.1111/cdep.12043
- Little, T. D., Rhemtulla, M., Gibson, K., & Schoemann, A. M. (2013). Why the items versus parcels controversy neednt be one. *Psychological Methods, 18*, 285-300. doi: 10.1037/a0033266
- Savalei, V., & Rhemtulla, M. (2013). The performance of robust test statistics with categorical data. *British Journal of Mathematical and Statistical Psychology, 66*, 201-223.
- Rhemtulla, M., & Little, T. D. (2012). Planned missing data designs for research in cognitive development. *Journal of Cognition and Development, 13*, 425-438.
- Rhemtulla, M., Brosseau-Liard, P., & Savalei, V. (2012). When can categorical variables be treated as continuous? A comparison of robust continuous and categorical SEM estimation methods under sub-optimal conditions. *Psychological Methods, 17*, 354-373.
- Savalei, V., & Rhemtulla, M. (2012). Teachers Corner: On obtaining estimates of the fraction of missing information from FIML. *Structural Equation Modeling, 19*, 477-494.
- Shariff, A., & Rhemtulla, M. (2012). Divergent effects of beliefs in heaven and hell on national crime rates. *PLoS One, 7*, e39048.
- Yoshida, K., Rhemtulla, M., & Vouloumanos, A. (2012). Exclusion constraints facilitate statistical word learning. *Cognitive Science, 36*, 933-947.
- Rhemtulla, M., & Tucker-Drob, E. M. (2012). Gene-by-socioeconomic status interaction on school readiness. *Behavior Genetics, 42*, 549-558.
- Nicoladis, E., & Rhemtulla, M. (2011). Childrens acquisition of word order depends on semantic/syntactic role: Evidence from adjective-noun order. *First Language, 32*, 479-493.
- Rhemtulla, M., & Tucker-Drob, E. M. (2011). Correlated longitudinal changes across linguistic, achievement, and psychomotor domains in early childhood: Evidence for a global dimension of development. *Developmental Science, 14*, 1245-1254.
- Tucker-Drob, E. M., Rhemtulla, M., Harden, K. P., Turkheimer, E., & Fask, D. (2011). Emergence of a gene-by-socioeconomic status interaction in infant mental ability from 10 months to 2 years. *Psychological Science, 22*, 125-133.
- Rhemtulla, M., & Hall, D. G. (2009). Monkey business: Children's use of character identity to infer shared properties. *Cognition, 113*, 167-176.
- Rhemtulla, M., & Hall, D. G. (2009). Basic-level kinds and object persistence. *Memory & Cognition, 27*, 292-301.
- Hall, D. G., Corrigan, K., Rhemtulla, M., Donegan, E., & Xu, F. (2008). Infants use of lexical-category-to-meaning links in object individuation. *Child Development, 79*, 1432-1443.
- Rhemtulla, M., & Xu, F (2007). Sortal concepts and causal continuity: Comment on Rips, Blok, & Newman (2006). *Psychological Review, 114*, 1087-1094.
- Rhemtulla, M., & Xu, F (2007). Postscript: Comment on Rips, Blok, & Newman (2006). *Psychological Review, 114*, 1095.

Nicoladis, E., & Rhemtulla, M. (2006). What is the Nature of Young Children's Implicit Grammatical Knowledge? Evidence from Adjective-Noun Constructions. In Sun, R. (ed.) Proceedings of the 28th Annual Conference of the Cognitive Science Society (pp.1875-1880) Mahwah, NJ: Erlbaum.

Xu, F. & Rhemtulla, M. (2005). In defense of psychological essentialism. In B.G. Bara, L. Barsalou, and M. Bucciarelli (eds.), Proceedings of the 27th Annual Conference of the Cognitive Science Society (pp.2377-2380). Mahwah, NJ: Erlbaum.

Westbury, C., Buchanan, L., Sanderson, S., Rhemtulla, M., & Phillips, L. (2003). Using genetic programming to discover non-linear variable interactions. *Behavior Research Methods, Instruments, and Computers*, 35, 202-216.

BOOK CHAPTERS

Little, T. D., Lang, K. M., Wu, W., & Rhemtulla, M. (2016). Missing Data. In D. Cicchetti (Ed.) *Developmental Psychopathology: Theory and Method* (3rd Edition). Wiley.

Rhemtulla, M. (2014). Statistics in Psychology. In H. L. Miller (Ed.) *Encyclopedia of Theory in Psychology*. Thousand Oaks, CA: SAGE Publications.

Schoemann, A. M., Rhemtulla, M., & Little, T. D. (2014). Multilevel and longitudinal modeling. In Reis, H. T., & Judd, C. M. (Eds.) *Handbook of Research Methods in Personality and Social Psychology*. Cambridge University Press.

Rhemtulla, M. & Little, T. D. (2013). Planned Missing Data Designs for Longitudinal Organizational Research. In M. Raukko & E. Paavilainen-Mntymki (Eds.) *Handbook of Longitudinal Research Methods in Organization and Business Studies*. Edward Elgar Publishing.

INVITED COMMENTARIES

Borsboom, D., Robinaugh, D. J., The Psychosystems Group, Rhemtulla, M., & Cramer, A. O. J. (2018). Robustness and replicability of psychopathology networks. *World Psychiatry*, 17, 143-144.

Rhemtulla, M., Borsboom, D., & van Bork, R. (2017). How to measure nothing. *Measurement*, 15, 95-97. doi: 10.1080/15366367.2017.1369785

van Bork, R.*, Rhemtulla, M., & Borsboom, D. (2016). Composites can be causal too. Comment on Möttus (2016). *European Journal of Personality*, 30, 304-340.

Rhemtulla, M., van Bork, R.*, & Borsboom, D. (2015). Calling models with causal indicators measurement models implies more than they can deliver. *Measurement*, 13, 59-62.

INVITED TALKS

University of Southern California	December 2019
University of California, Irvine	March 2019
University of California, Davis	December 2015
McGill University	November 2015
University of Tilburg	October 2015
University of Edinburgh	February 2015
University of Amsterdam	May 2013
University of Connecticut	February 2013
University of Nebraska, Lincoln	January 2013
Carleton University	January 2013
University of North Carolina, Chapel Hill	January 2013
The Ohio State University	January 2013
McGill University	November 2012
University of Pennsylvania	November 2012
University of Texas at Austin	May 2012

TEACHING

University of California, Davis204A *Statistical Analysis of Psychological Experiments* (graduate)205E *Applied Psychometrics and Measurement Theory* (graduate)103B *Statistical Analysis of Psychological Data* (undergraduate)104A *Applied Psychometrics: An Introduction to Measurement Theory* (undergraduate)205C *Structural Equation Modeling* (graduate)**University of Amsterdam***Multivariate Analysis* (graduate)*Structural Equation Modeling* (graduate)*Statistics for the Life Sciences* (undergraduate)**University of Kansas***Structural Equation Modeling* (graduate)

WORKSHOPS

Planned missing data designs

2016

Online Webinar, Society for the Study of Human Development Webinar Series

Advanced Structural Equation Modeling

2013

Summer Institutes in Statistics (5-day course)

Modern Missing Data Methods

2011-12

Summer Institutes in Statistics (5-day course)

Making missing data work: Theory and application of planned missing designs for developmental research

2012

Workshop given at the Society for Research in Child Development: Developmental Methods Conference, Tampa, FL.

GRADUATE

STUDENT

Simran Johal (PhD student), UC Davis, 2019 - present*Anna Wysocki* (PhD student), UC Davis, 2017 - present

MENTORSHIP

**Riet van Bork* (Master's research internship; PhD student), UvA, 2014 - present*Adela Isvoranu* (Master's research internship), UvA, 2016*Boris Stapel* (Master's research internship), UvA, 2015*Mae Nuijs* (Master's research internship), UvA, 2014*Fan Xia* (graduate student research project), KU, 2013*Mauricio Garnier-Villareal* (graduate student research project), KU, 2013

*recipient of the Award for best master's thesis in Psychology at UvA

Advising Committees, UC Davis

Individual Advising Committee Member: *Anna Wysocki, Simran Johal, Sydney Wood, Donald Williams, Rui Jiang, Michael Clark, Rohit Batra, Michaela DeBolt, Forrest Rogers, Lynea Witzak, Matthew Miller, Madeline Craft, Alea Skwara, Sarah Schiavone, Josue Rodriguez-Zamora, Dillon Fitch, Maria Usacheva*Oral Exam Committee Member: *Katie Finnegan, Jessie Sun, Kailey Lawson, Nicholas Alen, Madeline Lenhausen*Quantitative Minor Project Committee Member: *Zhi Li, Matthew Miller, Forrest Rogers, Jehan*

Sparks, Andre Wang, Lynea Witzak, Michaela DeBolt, Nicholas Alen, Kurt Winsler

UNDERGRADUATE STUDENT MENTORSHIP	Directed study projects 2004 - 2012 <i>Candace Brown, Elaine Co, Kelly Crowe, Kelly Hamilton, Kellie Lok, Maryam Noghondarian, Sophie Ty</i>	
	Undergraduate theses 2003 - 2014 <i>*Katie Corrigall, *Jayme Heininger, Bennett Kleinberg, Graham Lavender</i> *recipients of the Belkin Award for best honours thesis in Psychology at UBC	
	Undergraduate theses, UC Davis <i>Jack Friedrich</i>	
PEDAGOGICAL TRAINING	<i>Instructional Skills Workshop</i> 1-day workshop, University of British Columbia	2008
	<i>Teaching and Designing Your Teaching</i> 3-day workshop, University of Amsterdam	2014
TEACHING AWARDS	<i>BKO: University Teaching Qualification</i> Certification of teaching proficiency granted by the University of Amsterdam. The certification is based on a teaching portfolio, in-class assessment, student evaluations, and interview.	2016
EDITORIAL	Guest Editor, <i>Psychometrika</i> Special Issue: Network Psychometrics in Action Statistical Advisor, <i>Psychological Science</i> Associate Editor, <i>Advances in Methods and Practices in Psychological Science</i> Associate Editor, <i>British Journal of Mathematical and Statistical Psychology</i> Editorial Board, <i>Psychological Methods</i> Consulting Editor, <i>Developmental Psychology</i> Editorial Board, <i>Advances in Methods and Practices in Psychological Science</i> Editorial Board, <i>International Journal of Behavioral Development</i> Ad-Hoc Reviewer, <i>Behavior Research Methods, British Journal of Mathematical and Statistical Psychology, Child Development, Cognitive Linguistics, Developmental Psychology, Developmental Science, Educational Research Review, Educational Measurement: Issues and Practice, European Journal of Research Methods for the Behavioral and Social Sciences, Frontiers in Psychology, Infancy, International Journal of Behavioral Development, Journal of Consulting and Clinical Psychology, Journal of Experimental Education, Journal of Personality and Social Psychology, Multivariate Behavioral Research, National Science Foundation, Philosophical Psychology, PLOS one, Psychological Methods, Psychological Review, Sankhya B, Social Psychological and Personality Science, Structural Equation Modeling</i>	2020 2020-present 2018-present 2019-present 2019-present 2016-present 2017-2018 2014-2017 2005-present
PROFESSIONAL MEMBERSHIPS	Society for Multivariate Experimental Psychology Society for the Improvement of Psychological Science Association for Psychological Science	