Han Du

Department of Psychology

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RESEARCH INTERESTS

Bayesian methods and statistical computing

longitudinal data analysis and time series analysis

Study design (e.g, sample size determination)

Meta-analysis

EDUCATION

Ph.D. in Quantitative Psychology   2017

University of Notre Dame

M.S. in Applied and Computational Mathematics and Statistics   2016

University of Notre Dame

B.A. in Psychology   2012

Beijing Normal University

ACADEMIC APPOINTMENTS

Assistant Professor   7/2017–3/2018

Department of Psychology

University of California, Los Angeles

SELECTED DISTINCTIONS

2019-   Consulting Editor, *Behavior Research Methods*

2020-   Consulting Editor, *Cultural Diversity and Ethnic Minority Psychology*

2020-   Guest Editor, *Journal of Behavioral Data Science*

GRANT ACTIVITIES

UCLA Faculty Career Development Award (2020-2021)

Title: Facilitating Effective Educational, Social, and Behavioral Science Research in Real-World Settings: Developing Bayesian Methods for Handling Non-Random Missing Data

Role: Awardee

Amount: $5,000

Institute of Education Sciences (PI: Craig Enders; 2019-2022)

Title: Model-based Multiple Imputation for Multilevel Data: Methodological Extensions and Software Enhancements

Role: Co-PI

Amount: $868,046.00

National Science Foundation Career Award (PI: Yasemin Copur-Gencturk; 04/01/2018-04/01/2022)

Award number: 1751309

Title: Development of Pedagogical Content Knowledge in Mathematics Among Beginning Teachers

Role: External evaluator

MENTORED GRANTS

2020 National Science Foundation (NSF) Graduate Research Fellowship (Awardee: Stefany Mena; three years within a five-year fellowship period)

Title: A Novel Permutation Method for Testing Changes in Multilevel Models

Role: Mentor

Graduate Summer Research Mentorship award, University of California, Los Angeles (Awardee: Stefany Mena; 06/18/2020-09/14/2020)

Title: A Permutation Method for Testing Changes in Multilevel Models

Role: Mentor

Graduate Summer Research Mentorship award, University of California, Los Angeles (Awardee: Sijia Huang; 06/18/2018-09/14/2018)

Title: Detecting Change in Growth Curve Models with Non-normal Data: Methods and Comparisons

Role: Mentor

PUBLICATIONS

* indicates student authors

Du, H., & Bentler, P.M. (In press). Distributionally-weighted least squares in structural equation modeling. *Psychological Methods.*

Du, H., & Enders, C. K., Keller, B. T., Bradbury, T. & Karney, B. (In press). A Bayesian latent variable selection model for nonignorable missingness. *Multivariate Behavioral Research.*

Ray, L. A., **Du, H.,** Green, R., Roche, D. J. O, & Bujarski, S. (In press) Do behavioral pharmacology findings predict clinical trials outcomes? A proof-of-concept in medication development for alcohol use disorder. *Neuropsychopharmacology.*

Ray, L. A., **Du, H.,** Grodin, E., Bujarski, S., Meredith, L., Ho, D., Nieto, S., & Wassum, K. (Advance online publication). Capturing habitualness of drinking and smoking behavior in humans. *Drug and Alcohol Dependence.*

Park, I. J. K., **Du, H.,** Wang, L., Williams, D. R., & Alegría, M. (2020). The role of parents' ethnic-racial socialization practices in the discrimination—depression link among Mexican-origin adolescents. *Journal of Clinical Child and Adolescent Psychology, 49*(3), 391-404.

Du, H., Bradbury, T.N., Lavner, J.A., Meltzer, A.L., McNulty, J.K., Neff, L.A., & Karney, B.R. (2020). A comparison of Bayesian synthesis approaches for comparing two group means. *Research Synthesis Methods, 11*, 36-65.

Du, H., & Wang, L. (2020). Testing variance components in linear mixed modeling using permutation. *Multivariate Behavioral Research, 55*(1), 120-136.

Enders, C. K., **Du, H.,** & Keller, B. T. (2020). A model-based imputation procedure for multilevel regression models with random coefficients, interaction effects, and nonlinear terms. *Psychological Methods, 25*(1), 88–112.

Du, H., Edwards, M. C., & Zhang, Z. (2019). Bayes factor in one-sample tests of means with a sensitivity analysis: A discussion of separate prior distributions. *Behavior Research Methods, 51*(5), 1998-2021.

*Gao, M., **Du, H.,** Davies, P. T., & Cummings, E. M. (2019). Marital conflict behaviors and parenting: Dyadic links over time. *Family Relations, 68*(1), 135-149.

Cummings, E. M., Taylor, L. K., **Du, H.,** Merrilees, C. E., Goeke-Morey, M., & Shirlow, P. (2019). Examining bidirectional pathways between exposure to political violence and adolescent adjustment in Northern Ireland. *Journal of Clinical Child & Adolescent Psychology, 48*(2), 296-305.

*Keller, B. T., & **Du, H.** (2019). A fully conditional specification approach to multilevel multiple imputation with latent cluster means. *Multivariate Behavioral Research, 54*(1), 149-150.

Du, H., & Wang, L. (2018). Investigating reliabilities of intraindividual variability indicators with autocorrelated longitudinal data. *Multivariate Behavioral Research, 53*(4), 502-520.

Du, H. (2018). Statistical power analysis for t-tests. In Z. Zhang, & K.-H. Yuan, (Eds.), *Practical Statistical Power Analysis using WebPower and R* (pp.49-68)*.* Grander, IN: ISDSA Press.

Du, H., Zhang, Z., & Yuan, K.-H. (2018). Power analysis for t-test with non-normal data and unequal variances. In Z. Zhang, & K.-H. Yuan, (Eds.), *Practical Statistical Power Analysis using WebPower and R* (pp.273-298)*.* Grander, IN: ISDSA Press.

Enders, C. K., Hayes, T., & **Du, H.** (2018). A comparison of multilevel imputation schemes for random coefficient models: Fully conditional specification and joint model imputation with random covariance matrices. *Multivariate Behavioral Research, 53*(5), 695-713.

Park, I. J. K., **Du, H.,** Wang, L., Williams, D. R., & Alegría, M. (2018). Racial/ethnic discrimination and mental health in Mexican-origin youths and their parents: Testing the "linked lives" hypothesis. *Journal of Adolescent Health, 62*(4), 480-487.

Du, H., Liu, F., & Wang, L. (2017). A Bayesian" fill-in" method for correcting for publication bias in meta-analysis. *Psychological Methods, 22*(4), 799-817.

Du, H., & Wang, L. (2017). Investigating reliabilities of intraindividual variability indicators with autocorrelated longitudinal data (abstract). *Multivariate Behavioral Research, 52*(1), 120-121.

*Planalp, E.M., **Du, H.,** Braungart-Rieker, J.M., & Wang, L. (2017). Growth curve modeling to studying change: A comparison of approaches using longitudinal dyadic data with distinguishable dyads. *Structural Equation Modeling, 24*(1), 129-147.

Du, H., & Wang, L. (2016). A Bayesian power analysis procedure considering uncertainty in effect size estimates from a meta-analysis. *Multivariate Behavioral Research, 51*(1), 589-605.

Du, H., & Wang, L. (2016). The impact of the number of dyads on estimation of dyadic data analysis using multilevel modeling. *Methodology, 12*(1), 21-31.

Jiang, T., Zhang, W., Wen, W., Zhu, H., **Du, H**., Zhu, X., Gao, X., Zhang, H., Dong, Q., & Chen, C. (2016). Reevaluating the two-representation model of numerical magnitude processing. *Memory & Cognition, 44*(1), 162-170.

Li, J., Zhang, B., **Du, H.,** Zhu, Z., & Li, Y. (2015). Metacognitive planning: Development and validation of an online measure. *Psychological Assessment,*

27(1), 260-271.

Du, H., Pang. B., Cheng, J., & Wang, A. (2013). Comparing online advertising with newspaper advertising in different presentation conditions: The evidence of memory and eye tracking experiments. *Psychological Exploration, 33*(4), 380-384.

Du, H. (2012). The difference in susceptibility to negative emotion between different adult attachment styles. *Journal of Occupational Health and Damage, 26*(6), 339-342.

Li, J., Pang, B., Zhang, B., & **Du, H.** (2011). Self-regulation: From basic theories to applications. *Journal of Beijing Normal University, 6*, 5-13.

MANUSCRIPT UNDER REVIEW AND IN PREPARATION

* indicates student authors

Du, H., Jiang, G., & Ke, Z. (under review). A bootstrap based between-study heterogeneity test in meta-analysis.

Du, H., *Mena, S., & *Alacam, E. (under review). Compatibility in multiple imputation with single incomplete predictor and multiple incomplete predictors.

Reise, S.P., **Du, H**., *Wong, E., *Hubbard, A., & Haviland, M. (under review). The Log Logistic item response theory model and the measurement of non-cognitive constructs.

Ke, Z., Cheung, Y.M., Liang, Y.Y., **Du, H**., Liu, J.L., & Chen, W.Q. (under review). Quantifying and explaining heterogeneity in structural equation modeling parameters in model-based meta-analysis: Methods and illustrations.

Du, H., & Bentler, P.M. (manuscript drafted). Distributionally-weighted least squares in growth curve modeling.

Du, H., Ke, Z., & Jiang, G. (manuscript drafted). The performances of Gelman-Rubin and Geweke's convergence diagnostics.

*Mena, S., & **Du, H**. (manuscript drafted). A permutation method for testing changes with non-normal data in growth curve models.

*Forman, S., **Du, H**., Karlsgodt, K., & Lee, S. (manuscript drafted). Childhood hot and cold executive functioning: prospective prediction of adolescent social functioning.

CONFERENCE PRESENTATIONS

* indicates student authors

Copur-Gencturk, Y., **Du, H.,** & Thacker, I. (2020, October). *Differences in mathematical ability beliefs between teachers and mathematicians in higher education.* Paper to be presented at the Forty-Second Annual Meeting of the North-American Chapter of the International Group for the Psychology of Mathematics Education, Mazatlán, Sinaloa, Mexico.

*Mena, S., & **Du, H**. (2020, July). *Testing changes in multilevel models with non-normal data using permutation.* Poster to be presented at the 85th annual Meeting of the Psychometric Society (virtual).

*Alacam, E., **Du, H**., & Enders, C. K. (2020, July). *Novel Bayesian model-based imputation method for missing items in questionnaires.* Talk to be presented at the 85th annual Meeting of the Psychometric Society (virtual).

*Xiong, X.Y, Xin, T., **Du, H**., & Shen, Y. N. (2020, July). *What are central factors relating to middle school students' science achievements: Evidence from psychological network analysis.* Poster to be presented at the 85th annual Meeting of the Psychometric Society (virtual).

Du, H., & Bentler, P.M. (2020, June). *Distributionally-weighted least squares in structural equation modeling.* Talk presented at the 2020 Meeting of the International Society for Data Science and Analytics, Notre Dame, IN.

Du, H., & Enders, C.K. (2019, July). *A latent variable approach for handing non-ignorable missingness.* Talk presented at the 2019 Meeting of the International Society for Data Science and Analytics, Nanjing, China.

Du, H., Bradbury, T.N., Lavner, J.A., Meltzer, A.L., McNulty, J.K., Neff, L.A., & Karney, B.R. (2018, September). *A comparison of Bayesian synthesis approaches for comparing two group means.* Talk presented at the fourth Biennial Developmental Methods Conference, Whitefish, Montana.

Du, H., & Wang, L. (2018, July). *Testing variance components in linear mixed modeling using permutation.* Talk presented at the 83th annual Meeting of the Psychometric Society, New York City, New York.

Enders, C., **Du, H.,** & Keller, B. (2017, October). *A fully Bayesian imputation procedure for random coefficient models (and other pesky product terms).* Paper presented at the annual meeting of the Society for Multivariate Experimental Psychology, Minneapolis, MN.

Du, H., & Wang, L. (2017, July). *Investigating reliabilities of intraindividual variability indicators with autocorrelated longitudinal data.* Talk presented at the 82th annual Meeting of the Psychometric Society, Zürich, Switzerland.

Du, H., & Wang, L. (2016, October). *Investigating reliabilities of intraindividual variability indicators with autocorrelated longitudinal data.* Poster presented at the 2016 SMEP Graduate Student Conference, Richmond, Virginia.

Nuttall, A. K., Zhang, Q., **Du, H.,** Wang, L., & Maxwell, S. E. (2016, September). *Bias in cross-sectional examinations of longitudinal mediation with a time-invariant Predictor.* Poster presented at the third Biennial Developmental Methods Conference, Whitefish, Montana.

Du, H. (2016, July). *Power analysis for t-tests with non-normal data and unequal variances.* Talk presented at the 81th annual Meeting of the Psychometric Society, Asheville, North Carolina.

Du, H., Liu, F., & Wang, L. (2015, July). *A Bayesian "fill in" method for correcting for publication bias in meta-analysis.* Talk presented at the 80th Annual Meeting of the Psychometric Society, Beijing, China.

Du, H., & Wang, L. (2014, July). *Power analysis with uncertainty in effect sizes.* Talk presented at the 79th Annual Meeting of the Psychometric Society, Madison, Wisconsin.

Du, H., & Wang, L. (2013, May). *Number of dyads needed in dyadic data analysis.* Poster presented at the 25th Annual conference of the Association of Psychological Science, Washington DC.

SOFTWARE DEVELOPMENT

Enders, C.K., Keller, B.T., & **Du, H.** (2020). Blimp (Version 2.2): Bayesian analysis and multiple imputation application for MacOS, Windows, and Linux. Available at www.appliedmissingdata.com/multilevel-imputation.html

Enders, C.K., **Du, H.** (2020). Blimp technical appendix: Bayesian estimation for multilevel path models. Los Angeles, CA. Available at www.appliedmissingdata.com/multilevel-imputation.html.

Jiang, G., **Du, H.,** & Ke, Z. (2020). An R package "boot.heterogeneity: A Bootstrap based heterogeneity test for meta-analysis". Can be downloaded from CRAN (The Comprehensive R Archive Network)

Enders, C.K., **Du, H.,** & Keller, B.T. (2019). Blimp technical appendix: Fully Bayesian model-based estimation and multiple imputation for multilevel models. Los Angeles, CA. Available at www.appliedmissingdata.com/multilevel-imputation.html.

Du, H., & Wang, L. (2016). An R function for determining minimum numbers of assessments for obtaining reliable intraindividual variability indicators. Retrievable from https://ucla.box.com/s/j41idz4awhcn2n5k82p4vkb1027mq21q

Du, H., & Zhang, Z. (2016). An R function for implementing a Monte Carlo based t-test power analysis. Retrievable from https://ucla.box.com/s/c5wfloeb60a9vfhjggx7d9tb5bp2bg1f

Du, H., Liu, F., & Wang, L. (2016). An R function for implementing a Bayesian "fill in" method for correcting for publication bias. Retrievable from https://ucla.box.com/s/8507h6a1utake2fohh0bb51chgg4uqqo

Du, H., & Wang, L. (2015). An R function for implementing a Bayesian power analysis procedure considering uncertainty in the effect size estimates from a meta-analysis. Retrievable from https://ucla.box.com/s/glmci2mpybnqmvaiqjb4e1q55g878g71

WORKSHOP EXPERIENCE

Instructor, A three-day R workshop for Psychologists

Beijing Normal University   July, 2015

Instructor, A three-day Machine Learning workshop for Psychologists

Beijing Normal University   July, 2019

EDITORIAL ACTIVITIES

Ad Hoc Reviewer for *Psychological Methods, Multivariate Behavioral Research, Behavior Research Methods, BMC Medical Research Methodology, British Journal of Mathematical and Statistical Psychology, Family Relations, Journal of Family Issues*

GRANT REVIEW

Reviewer for the *Methodology, Measurement, and Statistics Program at the U.S. National Science Foundation*

CONFERENCE COMMITTEES

Committee member for the 2019 Meeting of the International Society for Data Science and Analytics (ISDSA)

Committee member for the 2020 Meeting of the International Society for Data Science and Analytics (ISDSA)

Reviewer for 2020 Society for Research on Adolescence (SRA) Biennial Meeting

DISSERTATION COMMITTEES

2018-2019   Dissertation Committee, Brian Keller, Quantitative Psychology

2019-2020   Dissertation Committee, Sijia Huang, Department of Education

UCLA STUDENT ADVISING

2018-present   Egamaria Alacam, Ph.D. student

2019-present   Stefany Mena, Ph.D. student

2019-2020   Yimeng Zhang, Psychology Departmental Honors Thesis

2019-2020   Tristan Tibbe, 251 project (secondary sponsor)

2019-2020   Suzanna Donato, 251 project (secondary sponsor)

2019-2020   Ben Haggerty, 251 project (secondary sponsor)

2020-2022   Ayuni Camille Kelton, UCLA McNair Research Scholars Program

HONORS and AWARDS

Notebaert Professional Development award

University of Notre Dame 2016

Graduate Student Union Conference Presentation Grant

University of Notre Dame 2015 – 2016

Society of Multivariate Experimental Psychology (SMEP) Travel Award

14th Annual SMEP Graduate Student Conference 2016

Faculty Career Development Award

University of California, Los Angeles 2020