

William C. M. Belzak, Ph.D.

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828-768-5700

WORK EXPERIENCE

- 2021-Present Duolingo – Pittsburgh, PA
Psychometrician
- 2020 Google – Los Angeles, CA
Data Scientist Intern
- 2013-2015 Ipreo (IHS Markit) – Raleigh, NC
Financial Analyst

EDUCATION

- 2019-2021 University of North Carolina – Chapel Hill, NC
Ph.D., Quantitative Psychology
Advisor: Daniel J. Bauer
- 2017-2019 University of North Carolina – Chapel Hill, NC
M.A., Quantitative Psychology
Advisor: Daniel J. Bauer
- 2015-2017 College of William and Mary – Williamsburg, VA
M.A., Experimental Psychology
Advisor: Todd M. Thrash
- 2009-2013 North Carolina State University – Raleigh, NC
B.A., Economics, *summa cum laude*

METHOD ARTICLES

- Belzak, W. C. M.** (under review). The regDIF R Package: Evaluating Complex Sources of Measurement Bias Using Regularized Differential Item Functioning. *Structural Equation Modeling*.
- Belzak, W. C. M.** (under review). A Note on the Intersectionality of Measurement Bias in High-Stakes Testing. *Educational Measurement: Issues and Practice*.
- Belzak, W. C. M.** & Bauer, D. J. (under review). Using Regularization to Identify Measurement Bias Across Multiple Background Characteristics: A Penalized Expectation-Maximization Algorithm. *Psychometrika*.
- Chen, S. M., Bauer, D. J., **Belzak, W. C. M.**, & Brandt, H. (in press). Advantages of Spike and Slab Priors for Detecting Differential Item Functioning Relative to Other Bayesian Regularizing Priors and Frequentist Lasso. *Structural Equation Modeling*.
- Belzak, W. C. M.** & Bauer, D. J. (2020). Improving the Assessment of Measurement Invariance: Using Regularization to Select Anchor Items and Identify Differential Item Functioning. *Psychological Methods*, 25(6), 673-690.

Belzak, W. C. M. (2020). Testing Differential Item Functioning in Small Samples. *Multivariate Behavioral Research*, 55(5), 722-747.

Bauer, D. J., **Belzak, W. C. M.**, & Cole, V. T. (2020). Simplifying the Assessment of Measurement Invariance over Multiple Background Variables: Using Regularized Moderated Nonlinear Factor Analysis to Detect Differential Item Functioning. *Structural Equation Modeling: A Multidisciplinary Journal*, 27(1), 43-55.

Belzak, W. C. M., & Bauer, D. J. (2019). Interaction Effects May Actually Be Nonlinear Effects in Disguise: A Review of the Problem and Potential Solutions. *Addictive Behaviors*, 94, 99-108.

APPLIED ARTICLES

Rancourt, D., Choquette, E. M., Ahlich, E., Lang, B. M., Verzijl, C. L., Palermiro, M., & **Belzak, W. C. M.** (revised and resubmitted). Invariance of the Eating Disorder Inventory - Drive for Thinness Subscale Across University and Community Samples. *Psychological Assessment*.

Stevens, A. K., Janssen, T., **Belzak, W. C. M.**, Padovano, H. T., & Jackson, K. M. (in press). Comprehensive Measurement Invariance of Alcohol Outcome Expectancies among Adolescents using Regularized Moderated Nonlinear Factor Analysis. *Addictive Behaviors*.

Thrash, T. M., Maruskin, L. A., Moldovan, E. G., Oleynick, V. C., & **Belzak, W. C. M.** (2017). Writer–Reader Contagion of Inspiration and Related States: Conditional Process Analyses Within a Cross-Classified Writer × Reader Framework. *Journal of Personality and Social Psychology*, 113(3), 466-491.

CHAPTERS & REPORTS

Lockwood, J. R. & **Belzak, W. C. M.** (2021). Test-Retest Reliability of the Duolingo English Test: Accounting for Self-Selection using Minimum Discriminant Information Adjustment.

Thrash, T. M., **Belzak, W. C. M.**, Wadsworth, L. M., & Sim, Y. Y. (2019). Indirect Effect Models. In V. Zeigler-Hill and T. Shackelford (Eds.) *Encyclopedia of Personality and Individual Differences*. New York: Springer.

Belzak, W. C. M., Thrash, T. M., Wadsworth, L. M., & Sim, Y. Y. (2017). Beyond Hedonic and Eudaimonic Well-Being: Inspiration and the Self-Transcendence Tradition. In M. Robinson and M. Eid (Eds.) *The Happy Mind: Cognitive Contributions to Well-Being*. New York: Springer.

STATISTICAL SOFTWARE

Belzak, W. C. M. (2021) *regDIF: Regularized Differential Item Functioning* (Version 1.1.0) [R]. <https://CRAN.R-project.org/package=regDIF>.

FUNDING

2019-2021 National Defense Science and Engineering Graduate Fellowship (NDSEG), United States Department of Defense

2017-2018 Merit Fellowship, University of North Carolina at Chapel Hill

AWARDS

- 2020 Lyle V. Jones Award for Academic Excellence and Community Engagement, L.L. Thurstone Psychometric Laboratory, University of North Carolina at Chapel Hill
- 2009-2013 Dean's List, North Carolina State University
- 2012, 2013 Outstanding Junior and Senior Award – Economics Department, North Carolina State University

SERVICE

Ad-hoc reviewer: *Addictive Behaviors, Multivariate Behavioral Research, Journal of Educational and Behavioral Statistics, Structural Equation Modeling*

MEMBERSHIP

American Psychological Association, Psychometric Society, National Council on Measurement in Education

TEACHING

- 2018 Structural Equation Modeling, TA (Bollen; ICPSR)
- 2017 Cognition and Thinking, TA (Ball; W&M)
- 2016 Introduction to Statistics, TA (Hilimire; W&M)
- 2016 Research Methods in Social Psychology, TA (Nezlek; W&M)
- 2015 Research Methods in Personality, TA (Nezlek; W&M)

SELECTED PRESENTATIONS

Belzak, W. C. M. (2021) *Regularized DIF: A Penalized EM Algorithm via Concave and Non-Concave Penalty Functions*. Talk given at International Meeting of the Psychometric Society at the University of Maryland, College Park, MD.

Belzak, W. C. M. (2019) *A Regularization Approach to Evaluate Measurement Invariance and Differential Item Functioning Among Two Groups*. Talk given at Quantitative Forum in the L.L. Thurstone Psychometric Laboratory, Chapel Hill, NC.

Belzak, W. C. M. & Thrash, T. M. (2017) *Personality similarity between writers and readers: Predicting reader inspiration within a writer \times reader cross-classified framework*. Poster presented at the Society for the Science of Motivation Preconference – Association for Psychological Science Annual Convention, Boston, MA.

Belzak, W. C. M. (2016) *Inspired to Imagine*. Talk given at the College of William and Mary Graduate Research Symposium, Williamsburg, VA.

Belzak, W. C. M. & Thrash, T. M. (2016) *Inspired writers produce imagery-laden texts through an efficient process of expression*. Poster presented at the Happiness and Well-Being Preconference - Society for Personality and Social Psychology, San Diego, CA.

OTHER WORK

2019-Present	Psychometrician, School of Business at University of San Diego
2019	Psychometrician, School of Social Work at UNC – Chapel Hill
2018-2019	Research Assistant, Chancellor’s Science Scholars at UNC – Chapel Hill
2018	Research Assistant, School of Medicine at UNC – Chapel Hill