William C. M. Belzak

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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

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 Frequenstist 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.

STATISTICAL SOFTWARE

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

APPLIED ARTICLES

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

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.

UNDER REVIEW, REVISION, OR RESUBMISSION

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

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.*

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

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 × 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