Presentation Supplement

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Symbol Glossary

- $\Omega_{p \times p}$: Population covariance matrix for p items
- $\Omega(\gamma)$: Matrix-valued function of a vector of free parameters, γ
- $\Sigma_{p \times p}$: The population covariance matrix with model error.
- $\mathbf{E}_{n \times n}$: Error (perturbation) matrix
- $\Lambda_{p \times k}$: Matrix of factor loadings for p items on k factors
- $\Phi_{k \times k}$: Correlation matrix for the k factors
- $\Psi_{p \times p}$: Diagonal matrix of item unique variances
- ε : Root mean square error of approximation (RMSEA)
- ε_T : Target RMSEA
- CFI: Comparative Fit Index (CFI)
- CFI_T : Target CFI
- m = 1/v: Precision parameter for the inverse-Wishart distribution

References

- Beauducel, A., & Hilger, N. (2016). On the correlation of common factors with variance not accounted for by the factor model. *Communications in Statistics Simulation and Computation*, 45(6), 2145–2157. https://doi.org/gh64s7
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107(2), 238–246. https://doi.org/dbj
- Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods & Research*, 17(3), 303–316. https://doi.org/cfgdt5
- Box, G. E. P., & Draper, N. R. (1987). Empirical model-building and response surfaces. (pp. xiv, 669). John Wiley & Sons.
- Briggs, N. E., & MacCallum, R. C. (2003). Recovery of weak common factors by maximum likelihood and ordinary least squares estimation. *Multivariate Behavioral Research*, 38(1), 25–56. https://doi.org/bgnz9w
- Cudeck, R., & Browne, M. W. (1992). Constructing a covariance matrix that yields a specified minimizer and a specified minimum discrepancy function value. *Psychometrika*, 57(3), 357–369. https://doi.org/cq6ckd
- de Winter, J. C. F., & Dodou, D. (2016). Common factor analysis versus principal component analysis: A comparison of loadings by means of simulations. *Communications in Statistics Simulation and Computation*, 45(1), 299–321. https://doi.org/gh64cn
- Gnambs, T., & Staufenbiel, T. (2016). Parameter accuracy in meta-analyses of factor structures. Research Synthesis Methods, 7(2), 168–186. https://doi.org/gcz6x6
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2018). Multivariate Data Analysis. Cengage.
- Hsu, H.-Y., Kwok, O., Lin, J. H., & Acosta, S. (2015). Detecting misspecified multilevel structural equation models with common fit indices: A Monte Carlo study. *Multivariate Behavioral Research*, 50(2), 197–215. https://doi.org/gg5fk7

- Kline, R. B. (2011). Principles and practice of structural equation modeling (3rd ed). Guilford Press.
- Kracht, J. D., & Waller, N. G. (2020). Assessing dimensionality in non-positive definite tetrachoric correlation matrices: Does matrix smoothing help? *Multivariate Behavioral Research*. https://doi.org/ghq7p7
- MacCallum, R. C., & O'Hagan, A. (2015). Advances in modeling model discrepancy: Comment on Wu and Browne (2015). *Psychometrika*, 80(3), 601–607. https://doi.org/f7qpj3
- MacCallum, R. C., Widaman, K. F., Preacher, K. J., & Hong, S. (2001). Sample size in factor analysis: The role of model error. *Multivariate Behavioral Research*, 36(4), 611–637. https://doi.org/b3v4p6
- Ogasawara, H. (2001). Approximations to the distributions of fit indexes for misspecified structural equation models. Structural Equation Modeling: A Multidisciplinary Journal, 8(4), 556–574. https://doi.org/bv4m wk
- Pek, J. (2012). Fungible parameter contours and confidence regions in structural equation models [PhD thesis, University of North Carolina]. https://doi.org/10.17615/S9V9-5M31
- Trichtinger, L. A., & Zhang, G. (2020). Quantifying model error in P-technique factor analysis. *Multivariate Behavioral Research*, $\theta(0)$, 1–16. https://doi.org/gh64s8
- Tucker, L. R., Koopman, R. F., & Linn, R. L. (1969). Evaluation of factor analytic research procedures by means of simulated correlation matrices. *Psychometrika*, 34(4), 421–459. https://doi.org/chcxvf
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38(1), 1–10. https://doi.org/bcz7k9
- Wu, H., & Browne, M. W. (2015). Quantifying adventitious error in a covariance structure as a random effect. Psychometrika, 80(3), 571–600. https://doi.org/gjrkc4
- Zhu, C., Byrd, R. H., Lu, P., & Nocedal, J. (1997). Algorithm 778: L-BFGS-B: Fortran subroutines for large-scale bound-constrained optimization. ACM Transactions on Mathematical Software, 23(4), 550–560. https://doi.org/bv55xf