Supplemental Figure 1S. Parameter Recovery from MSEM analysis in the Simulation Study. Note. 4 samples were removed because of suspiciously high outlier χ^2 values.

Supplemental Figure 2S. Illustration of 1 Factor Affect Structure

Supplemental Figure 3S. Illustration of 2 Factor Affect Structure

Supplemental Figure 4S. Histogram of Between-Person Means for Negative Affect Items

Supplemental Figure 5S. Histogram of Between-Person Means for Positive Affect Items

Supplement

Based on the level-specific chi-square value, number of parameters, and sample size, one can compute additional indices of model fit. For example, the Bayesian Information Criteria (BIC) weights the number of parameters by the log of the sample size:

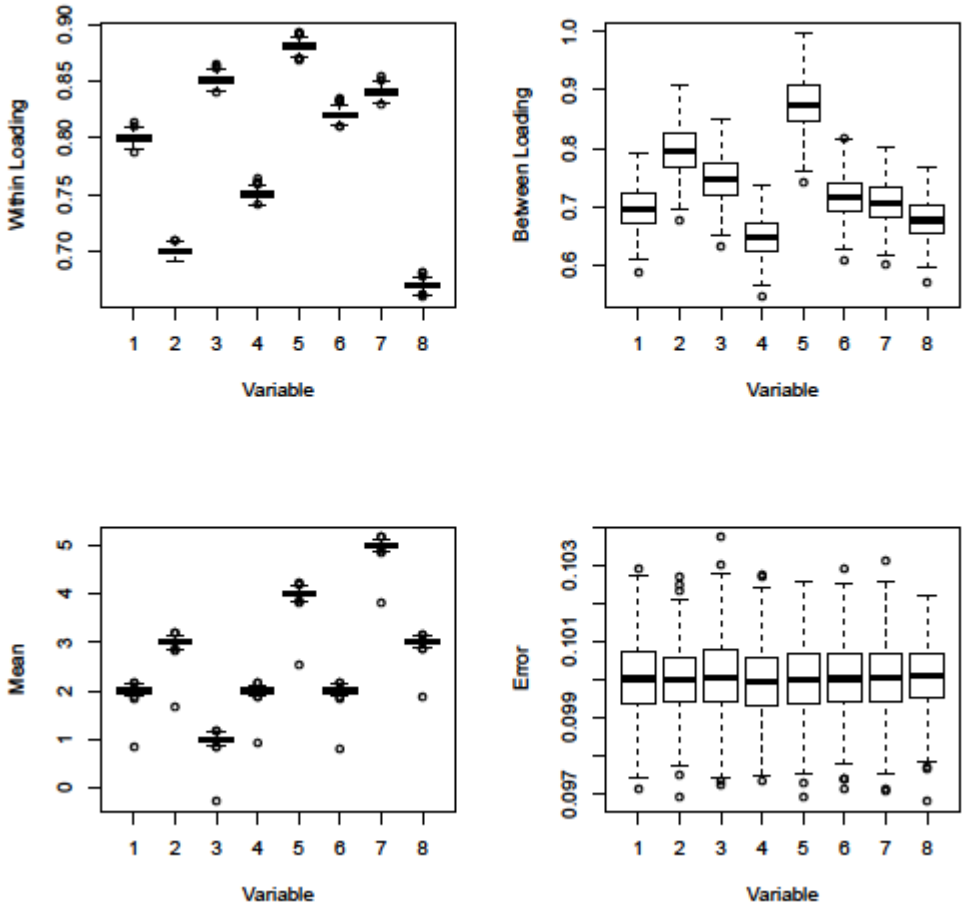
$$BIC_q = \chi_q^2 + k_q * \ln(N_q)$$

where χ_q^2, k_q, and N_q refer, respectively, to the chi-square statistic, number of parameters in the specified model, and sample size at a given level of analysis.

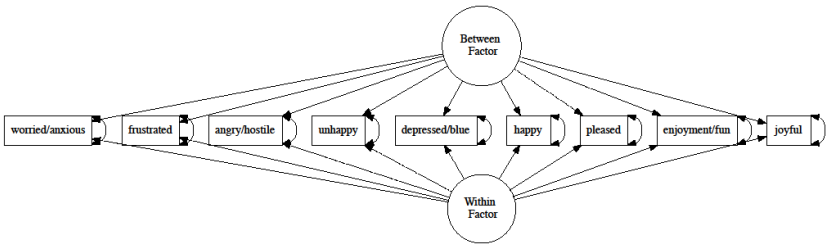
Supplemental Table 1S. Bayesian Information Criteria for Correctly and Incorrectly Specified 1-Factor Multilevel Structural Equation Models using the MSEM framework

Model	Level	*BIC – M (SD)*
CW, CB	1	719.06 (7.03)
	2	300.19 (7.44)
WW, CB	1	77773.39 (326.24)
	2	300.26 (7.49)
CW, WB	1	719.21 (6.95)
	2	1778.15 (28.94)

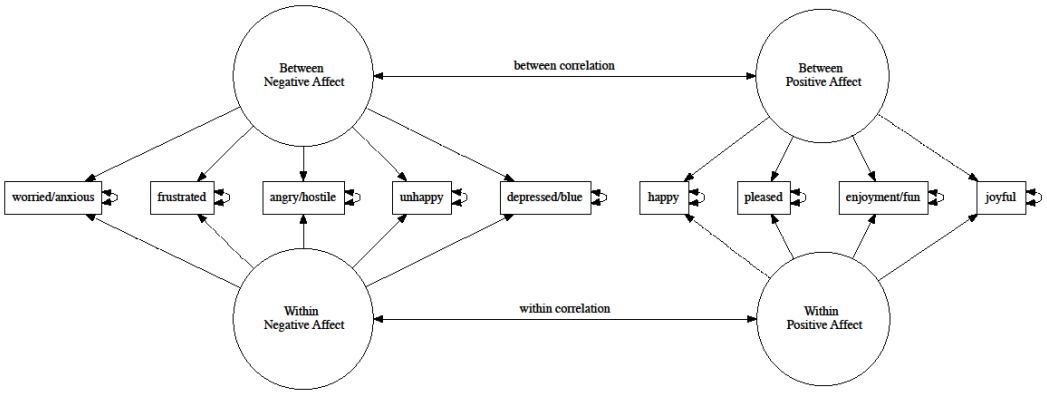
Note. M = mean, SD = standard deviation over 500 trials; CW indicates correct within model; CB indicates correct between model; WW indicates wrong within model; WB indicates wrong between model; MSEM indicates multilevel structural equation modeling (e.g., Goldstein & McDonald, 1988; Muthén, 1990, 1994). Because of suspiciously high outlier χ^2 values, 4 trials of the CW, CB model under the MSEM approach, 1 trial of the CW, WB model under the MSEM approach, and 1 trial of the CW, CB under the ML-SEM approach were removed.



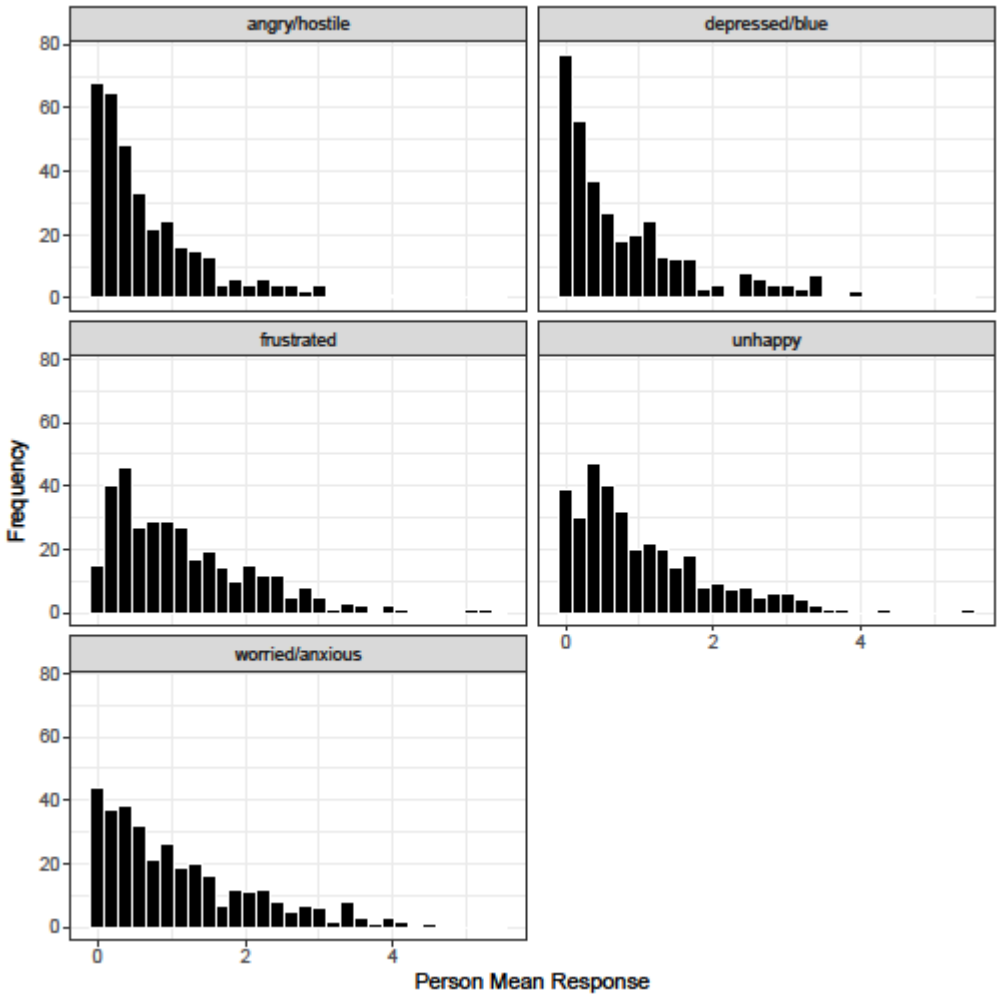
Supplemental Figure 1S



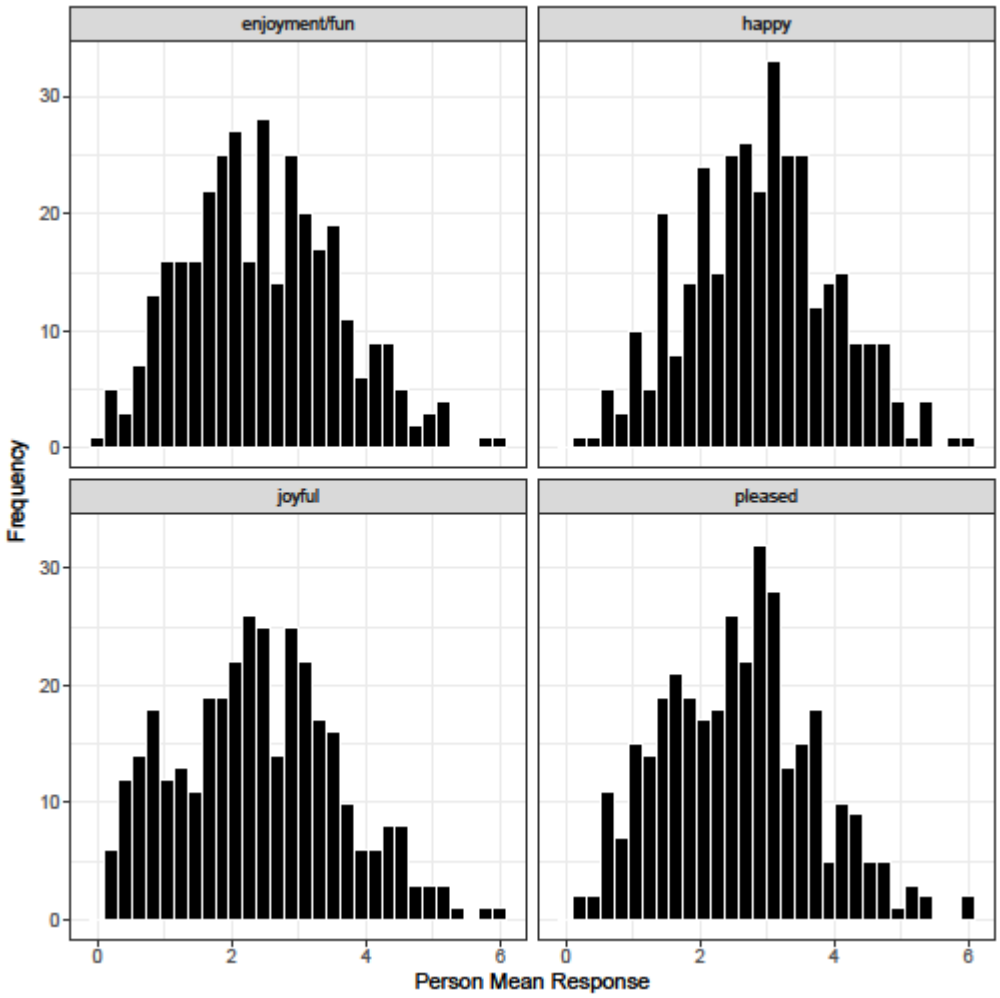
Supplemental Figure 2S



Supplemental Figure 3S



Supplemental Figure 4S



Supplemental Figure 5S