

Appendix C: Questionnaire Items and Confirmatory Factor Analyses

Agent Perceptions

Perceived Anthropomorphism

English items

Please rate Robin according to the following categories:

- a. Machine-like:Human-like
- b. Natural:Unnatural (R)
- c. Artificial:Lifelike

CFA

Model 1 (configural model): CFA with 3 correlated waves, with covarying residuals for the same items at T1, T2 and T3, but no equality constraints imposed

lavaan 0.6-3 ended normally after 61 iterations

Optimization method	NLMINB	
Number of free parameters	39	
Number of equality constraints	2	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	19.458	20.331
Degrees of freedom	17	17
P-value (Chi-square)	0.303	0.258
Scaling correction factor		0.957
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1455.493	1261.718
Degrees of freedom	36	36
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.998	0.997
Tucker-Lewis Index (TLI)	0.996	0.994
Robust Comparative Fit Index (CFI)		0.998
Robust Tucker-Lewis Index (TLI)		0.995

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2288.926	-2288.926
Loglikelihood unrestricted model (H1)	-2279.197	-2279.197

Number of free parameters	37	37
Akaike (AIC)	4651.851	4651.851
Bayesian (BIC)	4769.784	4769.784
Sample-size adjusted Bayesian (BIC)	4652.608	4652.608

Root Mean Square Error of Approximation:

RMSEA		0.028	0.033
90 Percent Confidence Interval	0.000	0.076	0.000 0.080
P-value RMSEA <= 0.05		0.720	0.672
Robust RMSEA			0.032
90 Percent Confidence Interval			0.000 0.077

Standardized Root Mean Square Residual:

SRMR	0.026	0.026
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
anthropomorphism_t1 =~					
anthrprmrph_1_1	1.000				1.361
anthrprmrph_1_2_	0.762	0.079	9.661	0.000	1.037
anthrprmrph_1_3	0.976	0.065	14.940	0.000	1.329
anthropomorphism_t2 =~					
anthrprmrph_3_1	1.000				1.478
anthrprmrph_3_2_	0.863	0.048	18.011	0.000	1.275
anthrprmrph_3_3	0.988	0.036	27.501	0.000	1.460
anthropomorphism_t3 =~					
anthrprmrph_5_1	1.000				1.575
anthrprmrph_5_2_	0.712	0.069	10.298	0.000	1.122
anthrprmrph_5_3	0.969	0.043	22.341	0.000	1.527

Std.all

0.889

0.705

0.883

0.922

0.843

0.943

0.928

0.698

0.937

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
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.anthropomorphism_t1_1 ~~						
.anthrpmrph_3_1	0.069	0.074	0.938	0.348	0.069	
.anthrpmrph_5_1	0.006	0.085	0.067	0.947	0.006	
.anthropomorphism_t3_1 ~~						
.anthrpmrph_5_1	0.083	0.083	1.012	0.312	0.083	
.anthropomorphism_t1_2_r ~~						
.anthrpmrp_3_2_	0.238	0.070	3.425	0.001	0.238	
.anthrpmrp_5_2_	0.113	0.105	1.084	0.278	0.113	
.anthropomorphism_t3_2_r ~~						
.anthrpmrp_5_2_	0.352	0.086	4.080	0.000	0.352	
.anthropomorphism_t1_3 ~~						
.anthrpmrph_3_3	0.011	0.053	0.203	0.839	0.011	
.anthrpmrph_5_3	0.076	0.058	1.303	0.193	0.076	
.anthropomorphism_t3_3 ~~						
.anthrpmrph_5_3	0.057	0.045	1.272	0.203	0.057	
anthropomorphism_t1 ~~						
anthrpmrphsm_2	1.357	0.183	7.430	0.000	0.675	
anthrpmrphsm_3	1.399	0.195	7.185	0.000	0.652	
anthropomorphism_t2 ~~						
anthrpmrphsm_3	2.037	0.207	9.823	0.000	0.875	
Std.all						

0.159

0.013

0.213

0.281

0.095

0.376

0.029

0.188

0.192

0.675

0.652

0.875

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.anth_1_1 (it1)	3.564	0.103	34.590	0.000	3.564	2.327
.ant_1_2_	3.942	0.108	36.451	0.000	3.942	2.682
.anth_1_3	3.749	0.109	34.299	0.000	3.749	2.491
.anth_3_1 (it1)	3.564	0.103	34.590	0.000	3.564	2.223
.ant_3_2_	3.772	0.108	34.843	0.000	3.772	2.493
.anth_3_3	3.673	0.108	33.975	0.000	3.673	2.371
.anth_5_1 (it1)	3.564	0.103	34.590	0.000	3.564	2.101
.ant_5_2_	3.703	0.113	32.659	0.000	3.703	2.304
.anth_5_3	3.519	0.110	32.003	0.000	3.519	2.159
anthrp_1	0.000				0.000	0.000

anthrp_2	0.000	0.000	0.000
anthrp_3	0.000	0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.anthrprmrph_1_1	0.493	0.126	3.904	0.000	0.493	0.210
.anthrprmrp_1_2_	1.085	0.179	6.064	0.000	1.085	0.502
.anthrprmrph_1_3	0.501	0.125	4.016	0.000	0.501	0.221
.anthrprmrph_3_1	0.387	0.091	4.272	0.000	0.387	0.151
.anthrprmrp_3_2_	0.663	0.117	5.665	0.000	0.663	0.290
.anthrprmrph_3_3	0.268	0.071	3.777	0.000	0.268	0.112
.anthrprmrph_5_1	0.397	0.112	3.541	0.000	0.397	0.138
.anthrprmrp_5_2_	1.323	0.227	5.824	0.000	1.323	0.512
.anthrprmrph_5_3	0.325	0.102	3.180	0.001	0.325	0.122
anthrprmrphsm_1	1.853	0.213	8.689	0.000	1.000	1.000
anthrprmrphsm_2	2.184	0.208	10.515	0.000	1.000	1.000
anthrprmrphsm_3	2.482	0.249	9.972	0.000	1.000	1.000

	anthropomorphism_t1	anthropomorphism_t2	anthropomorphism_t3
alpha	0.8633843	0.9293503	0.8879707
omega	0.8697913	0.9308402	0.8972059
omega2	0.8697913	0.9308402	0.8972059
omega3	0.8724911	0.9280300	0.9020059
avevar	0.6930016	0.8183664	0.7481123

	total
alpha	0.9339670
omega	0.9425669
omega2	0.9425669
omega3	0.9398852
avevar	0.7542884

Model 2 (weak invariance): CFA with constrained factor loadings and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 57 iterations

Optimization method	NLMINB	
Number of free parameters	39	
Number of equality constraints	6	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	25.642	26.480
Degrees of freedom	21	21
P-value (Chi-square)	0.220	0.189
Scaling correction factor		0.968
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1455.493	1261.718
Degrees of freedom	36	36

P-value	0.000	0.000		
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User model versus baseline model:

Comparative Fit Index (CFI)	0.997	0.996		
Tucker-Lewis Index (TLI)	0.994	0.992		
Robust Comparative Fit Index (CFI)		0.996		
Robust Tucker-Lewis Index (TLI)		0.994		

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2292.018	-2292.018		
Loglikelihood unrestricted model (H1)	-2279.197	-2279.197		
Number of free parameters	33	33		
Akaike (AIC)	4650.035	4650.035		
Bayesian (BIC)	4755.219	4755.219		
Sample-size adjusted Bayesian (BIC)	4650.710	4650.710		

Root Mean Square Error of Approximation:

RMSEA	0.035	0.038		
90 Percent Confidence Interval	0.000 0.076	0.000 0.079		
P-value RMSEA <= 0.05	0.680	0.639		
Robust RMSEA		0.038		
90 Percent Confidence Interval		0.000 0.077		

Standardized Root Mean Square Residual:

SRMR	0.039	0.039		
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
anthropomorphism_t1 =~					
anthr_1_1	1.000				1.351
anth_1_2_ (a1)	0.797	0.044	18.297	0.000	1.077
anthr_1_3 (a2)	0.975	0.029	33.096	0.000	1.317
anthropomorphism_t2 =~					
anthr_3_1	1.000				1.509
anth_3_2_ (a1)	0.797	0.044	18.297	0.000	1.202
anthr_3_3 (a2)	0.975	0.029	33.096	0.000	1.471
anthropomorphism_t3 =~					
anthr_5_1	1.000				1.554
anth_5_2_ (a1)	0.797	0.044	18.297	0.000	1.239
anthr_5_3 (a2)	0.975	0.029	33.096	0.000	1.515
Std.all					

0.886
 0.720
 0.880

 0.926
 0.824
 0.944

 0.926
 0.734
 0.934

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
.anthropomorphism_t1_1 ~~					
.anthrpmrph_3_1	0.070	0.074	0.938	0.348	0.070
.anthrpmrph_5_1	0.010	0.084	0.118	0.906	0.010
.anthropomorphism_t3_1 ~~					
.anthrpmrph_5_1	0.080	0.083	0.968	0.333	0.080
.anthropomorphism_t1_2_r ~~					
.anthrpmrp_3_2_	0.237	0.070	3.367	0.001	0.237
.anthrpmrp_5_2_	0.115	0.107	1.073	0.283	0.115
.anthropomorphism_t3_2_r ~~					
.anthrpmrp_5_2_	0.343	0.088	3.883	0.000	0.343
.anthropomorphism_t1_3 ~~					
.anthrpmrph_3_3	0.009	0.054	0.160	0.873	0.009
.anthrpmrph_5_3	0.075	0.058	1.299	0.194	0.075
.anthropomorphism_t3_3 ~~					
.anthrpmrph_5_3	0.059	0.045	1.306	0.192	0.059
anthropomorphism_t1 ~~					
anthrpmrphsm_2	1.376	0.177	7.793	0.000	0.675
anthrpmrphsm_3	1.368	0.188	7.264	0.000	0.651
anthropomorphism_t2 ~~					
anthrpmrphsm_3	2.053	0.209	9.815	0.000	0.876
Std.all					

0.161
 0.022

 0.206

 0.276
 0.096

 0.362

 0.023
 0.183

 0.197

 0.675
 0.651

0.876

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.anth_1_1 (it1)	3.559	0.103	34.516	0.000	3.559	2.334
.ant_1_2_	3.937	0.108	36.411	0.000	3.937	2.634
.anth_1_3	3.745	0.110	34.178	0.000	3.745	2.502
.anth_3_1 (it1)	3.559	0.103	34.516	0.000	3.559	2.185
.ant_3_2_	3.765	0.108	34.782	0.000	3.765	2.579
.anth_3_3	3.667	0.108	33.944	0.000	3.667	2.352
.anth_5_1 (it1)	3.559	0.103	34.516	0.000	3.559	2.121
.ant_5_2_	3.709	0.113	32.737	0.000	3.709	2.197
.anth_5_3	3.513	0.110	31.974	0.000	3.513	2.166
anthrp_1	0.000				0.000	0.000
anthrp_2	0.000				0.000	0.000
anthrp_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.anthrpmrph_1_1	0.500	0.113	4.407	0.000	0.500	0.215
.anthrpmrph_1_2_	1.074	0.173	6.224	0.000	1.074	0.481
.anthrpmrph_1_3	0.504	0.103	4.916	0.000	0.504	0.225
.anthrpmrph_3_1	0.377	0.092	4.098	0.000	0.377	0.142
.anthrpmrph_3_2_	0.686	0.107	6.428	0.000	0.686	0.322
.anthrpmrph_3_3	0.267	0.073	3.675	0.000	0.267	0.110
.anthrpmrph_5_1	0.400	0.103	3.882	0.000	0.400	0.142
.anthrpmrph_5_2_	1.315	0.238	5.517	0.000	1.315	0.461
.anthrpmrph_5_3	0.333	0.094	3.541	0.000	0.333	0.127
anthrpmrphsm_1	1.826	0.183	9.949	0.000	1.000	1.000
anthrpmrphsm_2	2.276	0.202	11.283	0.000	1.000	1.000
anthrpmrphsm_3	2.416	0.236	10.252	0.000	1.000	1.000

	anthropomorphism_t1	anthropomorphism_t2	anthropomorphism_t3
alpha	0.8633843	0.9293503	0.8879707
omega	0.8709348	0.9293328	0.9006133
omega2	0.8709348	0.9293328	0.9006133
omega3	0.8812416	0.9144873	0.9380887
avevar	0.6942683	0.8156857	0.7530524
total			
alpha	0.9339670		
omega	0.9432303		
omega2	0.9432303		
omega3	0.9510016		
avevar	0.7553929		

Model 3 (strong invariance): CFA with constrained factor loadings, intercepts, and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 48 iterations

Optimization method	NLMINB
Number of free parameters	39

Number of equality constraints	10		
Number of observations	179		
Estimator	ML	Robust	
Model Fit Test Statistic	37.387	38.966	
Degrees of freedom	25	25	
P-value (Chi-square)	0.053	0.037	
Scaling correction factor for the Satorra-Bentler correction		0.959	

Model test baseline model:

Minimum Function Test Statistic	1455.493	1261.718	
Degrees of freedom	36	36	
P-value	0.000	0.000	

User model versus baseline model:

Comparative Fit Index (CFI)	0.991	0.989	
Tucker-Lewis Index (TLI)	0.987	0.984	
Robust Comparative Fit Index (CFI)		0.991	
Robust Tucker-Lewis Index (TLI)		0.986	

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2297.890	-2297.890	
Loglikelihood unrestricted model (H1)	-2279.197	-2279.197	
Number of free parameters	29	29	
Akaike (AIC)	4653.780	4653.780	
Bayesian (BIC)	4746.214	4746.214	
Sample-size adjusted Bayesian (BIC)	4654.373	4654.373	

Root Mean Square Error of Approximation:

RMSEA		0.053	0.056	
90 Percent Confidence Interval	0.000	0.086	0.012	0.089
P-value RMSEA <= 0.05		0.418	0.360	
Robust RMSEA			0.055	
90 Percent Confidence Interval			0.014	0.087

Standardized Root Mean Square Residual:

SRMR	0.053	0.053	
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
anthropomorphism_t1 ==					
anthr_1_1	1.000				1.350
anth_1_2_ (a1)	0.802	0.043	18.514	0.000	1.083
anthr_1_3 (a2)	0.978	0.029	33.329	0.000	1.320
anthropomorphism_t2 ==					
anthr_3_1	1.000				1.507
anth_3_2_ (a1)	0.802	0.043	18.514	0.000	1.208
anthr_3_3 (a2)	0.978	0.029	33.329	0.000	1.473
anthropomorphism_t3 ==					
anthr_5_1	1.000				1.566
anth_5_2_ (a1)	0.802	0.043	18.514	0.000	1.255
anthr_5_3 (a2)	0.978	0.029	33.329	0.000	1.530

Std.all

0.887

0.721

0.879

0.926

0.825

0.944

0.929

0.738

0.934

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
.anthropomorphism_t1_1 ~~					
.anthrpmrph_3_1	0.068	0.074	0.917	0.359	0.068
.anthrpmrph_5_1	0.023	0.084	0.275	0.783	0.023
.anthropomorphism_t3_1 ~~					
.anthrpmrph_5_1	0.084	0.083	1.018	0.309	0.084
.anthropomorphism_t1_2_r ~~					
.anthrpmrp_3_2_	0.232	0.071	3.288	0.001	0.232
.anthrpmrp_5_2_	0.113	0.107	1.050	0.294	0.113
.anthropomorphism_t3_2_r ~~					
.anthrpmrp_5_2_	0.346	0.089	3.910	0.000	0.346
.anthropomorphism_t1_3 ~~					
.anthrpmrph_3_3	0.010	0.054	0.179	0.858	0.010
.anthrpmrph_5_3	0.064	0.057	1.113	0.266	0.064
.anthropomorphism_t3_3 ~~					
.anthrpmrph_5_3	0.055	0.045	1.232	0.218	0.055
anthropomorphism_t1 ~~					
anthrpmrphsm_2	1.368	0.176	7.763	0.000	0.672
anthrpmrphsm_3	1.346	0.187	7.181	0.000	0.637
anthropomorphism_t2 ~~					
anthrpmrphsm_3	2.055	0.209	9.843	0.000	0.871

Std.all

0.157

0.053

0.219

0.269

0.094

0.365

0.026

0.152

0.183

0.672

0.637

0.871

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.anth_1_1 (it1)	3.593	0.102	35.129	0.000	3.593	2.360
.ant_1_2_ (it2)	3.826	0.093	40.998	0.000	3.826	2.548
.anth_1_3 (it3)	3.673	0.099	37.090	0.000	3.673	2.447
.anth_3_1 (it1)	3.593	0.102	35.129	0.000	3.593	2.207
.ant_3_2_ (it2)	3.826	0.093	40.998	0.000	3.826	2.612
.anth_3_3 (it3)	3.673	0.099	37.090	0.000	3.673	2.353
.anth_5_1 (it1)	3.593	0.102	35.129	0.000	3.593	2.133
.ant_5_2_ (it2)	3.826	0.093	40.998	0.000	3.826	2.251
.anth_5_3 (it3)	3.673	0.099	37.090	0.000	3.673	2.240
anthrp_1	0.000				0.000	0.000
anthrp_2	0.000				0.000	0.000
anthrp_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.anthrprph_1_1	0.494	0.113	4.364	0.000	0.494	0.213
.anthrprph_1_2_	1.082	0.173	6.246	0.000	1.082	0.480
.anthrprph_1_3	0.510	0.104	4.922	0.000	0.510	0.227
.anthrprph_3_1	0.379	0.092	4.128	0.000	0.379	0.143
.anthrprph_3_2_	0.686	0.107	6.403	0.000	0.686	0.320
.anthrprph_3_3	0.266	0.073	3.664	0.000	0.266	0.109
.anthrprph_5_1	0.387	0.103	3.758	0.000	0.387	0.136
.anthrprph_5_2_	1.314	0.240	5.472	0.000	1.314	0.455
.anthrprph_5_3	0.345	0.095	3.636	0.000	0.345	0.129
anthrprphsm_1	1.824	0.183	9.959	0.000	1.000	1.000
anthrprphsm_2	2.271	0.202	11.266	0.000	1.000	1.000
anthrprphsm_3	2.451	0.235	10.416	0.000	1.000	1.000

	anthropomorphism_t1	anthropomorphism_t2	anthropomorphism_t3
alpha	0.8633843	0.9293503	0.8879707
omega	0.8710023	0.9294818	0.9024302
omega2	0.8710023	0.9294818	0.9024302
omega3	0.8848594	0.9169788	0.9566334
avevar	0.6943139	0.8159689	0.7567677

total
alpha 0.9339670
omega 0.9434064
omega2 0.9434064
omega3 0.9542451
avevar 0.7568477

Compare the three models

	model1	model2	model3
npar	37.000	33.000	29.000
fmin	0.054	0.072	0.104
chisq	19.458	25.642	37.387
df	17.000	21.000	25.000
pvalue	0.303	0.220	0.053
chisq.scaled	20.331	26.480	38.966
df.scaled	17.000	21.000	25.000
pvalue.scaled	0.258	0.189	0.037
chisq.scaling.factor	0.957	0.968	0.959
baseline.chisq	1455.493	1455.493	1455.493
baseline.df	36.000	36.000	36.000
baseline.pvalue	0.000	0.000	0.000
baseline.chisq.scaled	1261.718	1261.718	1261.718
baseline.df.scaled	36.000	36.000	36.000
baseline.pvalue.scaled	0.000	0.000	0.000
baseline.chisq.scaling.factor	1.154	1.154	1.154
cfi	0.998	0.997	0.991
tli	0.996	0.994	0.987
nmfi	0.996	0.994	0.987
rfi	0.972	0.970	0.963
nfi	0.987	0.982	0.974
pnfi	0.466	0.573	0.677
ifi	0.998	0.997	0.991
rni	0.998	0.997	0.991
cfi.scaled	0.997	0.996	0.989
tli.scaled	0.994	0.992	0.984
cfi.robust	0.998	0.996	0.991
tli.robust	0.995	0.994	0.986
nmfi.scaled	0.994	0.992	0.984
nmfi.robust	0.995	0.994	0.986
rfi.scaled	0.966	0.964	0.956
nfi.scaled	0.984	0.979	0.969
ifi.scaled	0.997	0.996	0.989
rni.scaled	0.997	0.996	0.989
rni.robust	0.998	0.996	0.991
logl	-2288.926	-2292.018	-2297.890
unrestricted.logl	-2279.197	-2279.197	-2279.197
aic	4651.851	4650.035	4653.780
bic	4769.784	4755.219	4746.214
ntotal	179.000	179.000	179.000
bic2	4652.608	4650.710	4654.373
rmsea	0.028	0.035	0.053
rmsea.ci.lower	0.000	0.000	0.000
rmsea.ci.upper	0.076	0.076	0.086

rmsea.pvalue	0.720	0.680	0.418
rmsea.scaled	0.033	0.038	0.056
rmsea.ci.lower.scaled	0.000	0.000	0.012
rmsea.ci.upper.scaled	0.080	0.079	0.089
rmsea.pvalue.scaled	0.672	0.639	0.360
rmsea.robust	0.032	0.038	0.055
rmsea.ci.lower.robust	0.000	0.000	0.014
rmsea.ci.upper.robust	0.077	0.077	0.087
rmsea.pvalue.robust	NA	NA	NA
rmr	0.047	0.087	0.107
rmr_nomean	0.030	0.086	0.093
srmr	0.026	0.039	0.053
srmr_bentler	0.026	0.039	0.053
srmr_bentler_nomean	0.012	0.035	0.037
crmr	0.027	0.036	0.049
crmr_nomean	0.013	0.017	0.018
srmr_mplus	0.025	0.038	0.049
srmr_mplus_nomean	0.012	0.025	0.028
cn_05	254.781	229.061	181.270
cn_01	308.335	272.771	213.164
gfi	0.993	0.990	0.986
agfi	0.977	0.975	0.969
pgfi	0.313	0.385	0.456
mfi	0.993	0.987	0.966
ecvi	0.522	0.512	0.533

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell1fit	17	4651.9	4769.8	19.458			
modell2fit	21	4650.0	4755.2	25.642	6.0841	4	0.193

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell1fit	17	4651.9	4769.8	19.458			
modell3fit	25	4653.8	4746.2	37.387	18.586	8	0.01724 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell2fit	21	4650.0	4755.2	25.642			
modell3fit	25	4653.8	4746.2	37.387	12.866	4	0.01195 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Trust

English items

Please state for each statement the extent to which you agree or disagree:

- a. I believe that Robin would act in my best interest
- b. If I needed help, Robin would do its best to help me
- c. Robin is interested in my well-being, not just its own
- d. Robin is truthful
- e. I would characterize Robin as honest
- f. Robin is sincere
- g. Robin is competent in providing sleep-related advice
- h. Robin is proficient in providing sleep-related advice
- i. Robin is knowledgeable about sleep
- j. Robin knows information about sleep very well

CFA

Model 1 (configural model): CFA with 3 correlated waves, with covarying residuals for the same items at T1, T2 and T3, but no equality constraints imposed

lavaan 0.6-3 ended normally after 135 iterations

Optimization method	NLMINB	
Number of free parameters	123	
Number of equality constraints	2	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	1100.604	659.420
Degrees of freedom	374	374
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.669
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	5951.325	3293.464
Degrees of freedom	435	435
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.868	0.900
Tucker-Lewis Index (TLI)	0.847	0.884
Robust Comparative Fit Index (CFI)		0.908
Robust Tucker-Lewis Index (TLI)		0.893

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-6640.945	-6640.945
Loglikelihood unrestricted model (H1)	-6090.643	-6090.643
Number of free parameters	121	121
Akaike (AIC)	13523.890	13523.890
Bayesian (BIC)	13909.563	13909.563
Sample-size adjusted Bayesian (BIC)	13526.363	13526.363

Root Mean Square Error of Approximation:

RMSEA		0.104	0.065
90 Percent Confidence Interval	0.097	0.111	0.059 0.072
P-value RMSEA <= 0.05		0.000	0.000
Robust RMSEA			0.084
90 Percent Confidence Interval			0.074 0.095

Standardized Root Mean Square Residual:

SRMR	0.058	0.058
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
trust_t1 =~						
trust_t1_1	1.000				0.913	0.713
trust_t1_2	1.173	0.111	10.576	0.000	1.071	0.781
trust_t1_3	0.963	0.112	8.594	0.000	0.880	0.642
trust_t1_4	1.026	0.098	10.431	0.000	0.937	0.847
trust_t1_5	0.942	0.096	9.794	0.000	0.860	0.795
trust_t1_6	0.930	0.084	11.036	0.000	0.849	0.812
trust_t1_7	0.996	0.127	7.869	0.000	0.909	0.716
trust_t1_8	1.012	0.102	9.962	0.000	0.924	0.734
trust_t1_9	1.005	0.133	7.569	0.000	0.918	0.722
trust_t1_10	1.011	0.126	8.029	0.000	0.923	0.716
trust_t2 =~						
trust_t3_1	1.000				1.128	0.859
trust_t3_2	0.983	0.054	18.200	0.000	1.108	0.792
trust_t3_3	0.959	0.073	13.060	0.000	1.081	0.735
trust_t3_4	0.966	0.060	16.181	0.000	1.090	0.860
trust_t3_5	0.854	0.076	11.298	0.000	0.963	0.804
trust_t3_6	0.933	0.055	17.047	0.000	1.053	0.849
trust_t3_7	0.952	0.062	15.375	0.000	1.074	0.815
trust_t3_8	0.889	0.062	14.333	0.000	1.003	0.789
trust_t3_9	0.970	0.068	14.307	0.000	1.094	0.864
trust_t3_10	1.087	0.064	16.926	0.000	1.226	0.841
trust_t3 =~						
trust_t5_1	1.000				1.200	0.839

trust_t5_2	0.957	0.060	15.924	0.000	1.148	0.826
trust_t5_3	0.935	0.057	16.418	0.000	1.122	0.784
trust_t5_4	0.955	0.053	18.034	0.000	1.146	0.893
trust_t5_5	0.930	0.050	18.706	0.000	1.116	0.891
trust_t5_6	0.978	0.050	19.645	0.000	1.173	0.886
trust_t5_7	0.992	0.066	14.961	0.000	1.190	0.804
trust_t5_8	0.987	0.057	17.231	0.000	1.184	0.837
trust_t5_9	1.035	0.057	18.269	0.000	1.242	0.873
trust_t5_10	1.027	0.058	17.787	0.000	1.232	0.843

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.trust_t1_1 ~~						
.trust_t3_1	0.063	0.065	0.973	0.330	0.063	0.104
.trust_t5_1	0.233	0.072	3.239	0.001	0.233	0.334
.trust_t3_1 ~~						
.trust_t5_1	0.104	0.051	2.046	0.041	0.104	0.200
.trust_t1_2 ~~						
.trust_t3_2	0.096	0.080	1.193	0.233	0.096	0.131
.trust_t5_2	0.159	0.062	2.552	0.011	0.159	0.237
.trust_t3_2 ~~						
.trust_t5_2	0.110	0.068	1.624	0.104	0.110	0.164
.trust_t1_3 ~~						
.trust_t3_3	0.244	0.103	2.362	0.018	0.244	0.232
.trust_t5_3	0.174	0.108	1.607	0.108	0.174	0.186
.trust_t3_3 ~~						
.trust_t5_3	0.354	0.102	3.479	0.001	0.354	0.400
.trust_t1_4 ~~						
.trust_t3_4	-0.031	0.046	-0.668	0.504	-0.031	-0.081
.trust_t5_4	0.038	0.037	1.044	0.296	0.038	0.113
.trust_t3_4 ~~						
.trust_t5_4	0.080	0.050	1.609	0.108	0.080	0.216
.trust_t1_5 ~~						
.trust_t3_5	0.077	0.046	1.697	0.090	0.077	0.165
.trust_t5_5	0.101	0.042	2.411	0.016	0.101	0.270
.trust_t3_5 ~~						
.trust_t5_5	0.149	0.059	2.541	0.011	0.149	0.367
.trust_t1_6 ~~						
.trust_t3_6	0.133	0.052	2.585	0.010	0.133	0.332
.trust_t5_6	0.056	0.051	1.090	0.276	0.056	0.148
.trust_t3_6 ~~						
.trust_t5_6	0.145	0.045	3.206	0.001	0.145	0.359
.trust_t1_7 ~~						
.trust_t3_7	0.229	0.074	3.085	0.002	0.229	0.338
.trust_t5_7	0.217	0.100	2.176	0.030	0.217	0.278
.trust_t3_7 ~~						
.trust_t5_7	0.214	0.088	2.435	0.015	0.214	0.318
.trust_t1_8 ~~						
.trust_t3_8	0.127	0.071	1.776	0.076	0.127	0.189
.trust_t5_8	0.118	0.067	1.766	0.077	0.118	0.178
.trust_t3_8 ~~						
.trust_t5_8	0.225	0.068	3.293	0.001	0.225	0.372
.trust_t1_9 ~~						
.trust_t3_9	0.120	0.055	2.199	0.028	0.120	0.215

.trust_t5_9	0.071	0.061	1.155	0.248	0.071	0.117
.trust_t3_9 ~~						
.trust_t5_9	0.149	0.048	3.107	0.002	0.149	0.338
.trust_t1_10 ~~						
.trust_t3_10	0.272	0.059	4.615	0.000	0.272	0.383
.trust_t5_10	0.234	0.066	3.530	0.000	0.234	0.331
.trust_t3_10 ~~						
.trust_t5_10	0.141	0.065	2.189	0.029	0.141	0.228
trust_t1 ~~						
trust_t2	0.770	0.139	5.521	0.000	0.747	0.747
trust_t3	0.746	0.145	5.155	0.000	0.681	0.681
trust_t2 ~~						
trust_t3	1.083	0.183	5.931	0.000	0.800	0.800

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.trst_1_1 (it1)	4.714	0.081	57.862	0.000	4.714	3.679
.trst_1_2	4.646	0.101	46.142	0.000	4.646	3.387
.trst_1_3	4.442	0.103	43.320	0.000	4.442	3.241
.trst_1_4	4.737	0.082	57.638	0.000	4.737	4.280
.trst_1_5	4.911	0.080	61.105	0.000	4.911	4.538
.trst_1_6	4.833	0.078	61.808	0.000	4.833	4.620
.trst_1_7	4.514	0.095	47.304	0.000	4.514	3.554
.trst_1_8	4.469	0.093	47.821	0.000	4.469	3.550
.trst_1_9	4.587	0.096	47.719	0.000	4.587	3.609
.trs_1_10	4.559	0.097	47.036	0.000	4.559	3.537
.trst_3_1 (it1)	4.714	0.081	57.862	0.000	4.714	3.591
.trst_3_2	4.523	0.100	45.214	0.000	4.523	3.231
.trst_3_3	4.310	0.106	40.704	0.000	4.310	2.930
.trst_3_4	4.712	0.091	52.014	0.000	4.712	3.720
.trst_3_5	4.854	0.083	58.425	0.000	4.854	4.051
.trst_3_6	4.705	0.090	52.310	0.000	4.705	3.793
.trst_3_7	4.611	0.094	48.814	0.000	4.611	3.497
.trst_3_8	4.575	0.090	50.692	0.000	4.575	3.598
.trst_3_9	4.684	0.091	51.353	0.000	4.684	3.700
.trs_3_10	4.576	0.105	43.534	0.000	4.576	3.139
.trst_5_1 (it1)	4.714	0.081	57.862	0.000	4.714	3.297
.trst_5_2	4.563	0.094	48.672	0.000	4.563	3.282
.trst_5_3	4.259	0.101	42.339	0.000	4.259	2.974
.trst_5_4	4.769	0.089	53.525	0.000	4.769	3.717
.trst_5_5	4.823	0.086	55.784	0.000	4.823	3.850
.trst_5_6	4.766	0.095	50.016	0.000	4.766	3.597
.trst_5_7	4.605	0.104	44.468	0.000	4.605	3.111
.trst_5_8	4.521	0.097	46.480	0.000	4.521	3.196
.trst_5_9	4.693	0.097	48.173	0.000	4.693	3.301
.trs_5_10	4.653	0.103	45.210	0.000	4.653	3.183
trust_t1	0.000				0.000	0.000
trust_t2	0.000				0.000	0.000
trust_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.trust_t1_1	0.807	0.125	6.442	0.000	0.807	0.492
.trust_t1_2	0.734	0.113	6.503	0.000	0.734	0.390

.trust_t1_3	1.105	0.156	7.063	0.000	1.105	0.588
.trust_t1_4	0.347	0.052	6.690	0.000	0.347	0.283
.trust_t1_5	0.432	0.061	7.085	0.000	0.432	0.369
.trust_t1_6	0.373	0.069	5.411	0.000	0.373	0.341
.trust_t1_7	0.786	0.114	6.923	0.000	0.786	0.487
.trust_t1_8	0.730	0.112	6.514	0.000	0.730	0.461
.trust_t1_9	0.772	0.118	6.553	0.000	0.772	0.478
.trust_t1_10	0.809	0.100	8.072	0.000	0.809	0.487
.trust_t3_1	0.450	0.059	7.569	0.000	0.450	0.261
.trust_t3_2	0.731	0.107	6.863	0.000	0.731	0.373
.trust_t3_3	0.994	0.130	7.651	0.000	0.994	0.460
.trust_t3_4	0.417	0.070	5.960	0.000	0.417	0.260
.trust_t3_5	0.508	0.121	4.189	0.000	0.508	0.354
.trust_t3_6	0.431	0.054	8.033	0.000	0.431	0.280
.trust_t3_7	0.585	0.094	6.258	0.000	0.585	0.337
.trust_t3_8	0.612	0.078	7.889	0.000	0.612	0.378
.trust_t3_9	0.405	0.049	8.220	0.000	0.405	0.253
.trust_t3_10	0.622	0.073	8.525	0.000	0.622	0.293
.trust_t5_1	0.604	0.095	6.351	0.000	0.604	0.295
.trust_t5_2	0.614	0.091	6.780	0.000	0.614	0.318
.trust_t5_3	0.791	0.129	6.151	0.000	0.791	0.386
.trust_t5_4	0.333	0.050	6.602	0.000	0.333	0.203
.trust_t5_5	0.324	0.062	5.268	0.000	0.324	0.207
.trust_t5_6	0.379	0.064	5.925	0.000	0.379	0.216
.trust_t5_7	0.775	0.130	5.979	0.000	0.775	0.354
.trust_t5_8	0.599	0.095	6.310	0.000	0.599	0.299
.trust_t5_9	0.480	0.084	5.699	0.000	0.480	0.237
.trust_t5_10	0.618	0.114	5.446	0.000	0.618	0.289
trust_t1	0.834	0.165	5.069	0.000	1.000	1.000
trust_t2	1.273	0.201	6.319	0.000	1.000	1.000
trust_t3	1.440	0.223	6.467	0.000	1.000	1.000

	trust_t1	trust_t2	trust_t3	total
alpha	0.9251556	0.9530783	0.9614793	0.9722276
omega	0.9244392	0.9531510	0.9615936	0.9688327
omega2	0.9244392	0.9531510	0.9615936	0.9688327
omega3	0.9208131	0.9487613	0.9656908	0.9676311
avevar	0.5512293	0.6713087	0.7148330	0.6521027

Model 2 (weak invariance): CFA with constrained factor loadings and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 112 iterations

Optimization method	NLMINB	
Number of free parameters	123	
Number of equality constraints	20	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	1116.343	679.125
Degrees of freedom	392	392

P-value (Chi-square)	0.000	0.000
Scaling correction factor for the Satorra-Bentler correction		1.644

Model test baseline model:

Minimum Function Test Statistic	5951.325	3293.464
Degrees of freedom	435	435
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.869	0.900
Tucker-Lewis Index (TLI)	0.854	0.889

Robust Comparative Fit Index (CFI)		0.909
Robust Tucker-Lewis Index (TLI)		0.899

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-6648.815	-6648.815
Loglikelihood unrestricted model (H1)	-6090.643	-6090.643

Number of free parameters	103	103
Akaike (AIC)	13503.629	13503.629
Bayesian (BIC)	13831.930	13831.930
Sample-size adjusted Bayesian (BIC)	13505.735	13505.735

Root Mean Square Error of Approximation:

RMSEA		0.102	0.064
90 Percent Confidence Interval	0.095	0.109	0.058 0.070
P-value RMSEA <= 0.05		0.000	0.000

Robust RMSEA		0.082
90 Percent Confidence Interval		0.072 0.092

Standardized Root Mean Square Residual:

SRMR	0.063	0.063
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
trust_t1 =~						
trst_t1_1	1.000				0.941	0.723
trst_t1_2 (a1)	1.000	0.045	22.077	0.000	0.941	0.732
trst_t1_3 (a2)	0.941	0.046	20.397	0.000	0.886	0.644
trst_t1_4 (a3)	0.970	0.045	21.745	0.000	0.913	0.838

trst_t1_5 (a4)	0.907	0.047	19.220	0.000	0.854	0.792
trst_t1_6 (a5)	0.945	0.039	24.287	0.000	0.890	0.825
trst_t1_7 (a6)	0.974	0.051	18.955	0.000	0.917	0.719
trst_t1_8 (a7)	0.955	0.042	22.464	0.000	0.899	0.725
trst_t1_9 (a8)	1.003	0.050	19.961	0.000	0.944	0.734
trst_1_10 (a9)	1.047	0.050	20.961	0.000	0.985	0.740
trust_t2 =~						
trst_t3_1	1.000				1.111	0.856
trst_t3_2 (a1)	1.000	0.045	22.077	0.000	1.111	0.793
trst_t3_3 (a2)	0.941	0.046	20.397	0.000	1.046	0.723
trst_t3_4 (a3)	0.970	0.045	21.745	0.000	1.077	0.857
trst_t3_5 (a4)	0.907	0.047	19.220	0.000	1.007	0.816
trst_t3_6 (a5)	0.945	0.039	24.287	0.000	1.050	0.847
trst_t3_7 (a6)	0.974	0.051	18.955	0.000	1.082	0.817
trst_t3_8 (a7)	0.955	0.042	22.464	0.000	1.060	0.806
trst_t3_9 (a8)	1.003	0.050	19.961	0.000	1.114	0.869
trst_3_10 (a9)	1.047	0.050	20.961	0.000	1.163	0.826
trust_t3 =~						
trst_t5_1	1.000				1.211	0.842
trst_t5_2 (a1)	1.000	0.045	22.077	0.000	1.211	0.840
trst_t5_3 (a2)	0.941	0.046	20.397	0.000	1.139	0.788
trst_t5_4 (a3)	0.970	0.045	21.745	0.000	1.174	0.897
trst_t5_5 (a4)	0.907	0.047	19.220	0.000	1.098	0.887
trst_t5_6 (a5)	0.945	0.039	24.287	0.000	1.144	0.879
trst_t5_7 (a6)	0.974	0.051	18.955	0.000	1.179	0.802
trst_t5_8 (a7)	0.955	0.042	22.464	0.000	1.156	0.830
trst_t5_9 (a8)	1.003	0.050	19.961	0.000	1.214	0.868
trst_5_10 (a9)	1.047	0.050	20.961	0.000	1.267	0.850

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.trust_t1_1 ~~						
.trust_t3_1	0.065	0.065	0.999	0.318	0.065	0.107
.trust_t5_1	0.235	0.073	3.229	0.001	0.235	0.337
.trust_t3_1 ~~						
.trust_t5_1	0.105	0.051	2.055	0.040	0.105	0.201
.trust_t1_2 ~~						
.trust_t3_2	0.094	0.080	1.173	0.241	0.094	0.126
.trust_t5_2	0.145	0.063	2.286	0.022	0.145	0.211
.trust_t3_2 ~~						
.trust_t5_2	0.105	0.068	1.549	0.121	0.105	0.158
.trust_t1_3 ~~						
.trust_t3_3	0.242	0.103	2.336	0.019	0.242	0.230
.trust_t5_3	0.175	0.108	1.614	0.107	0.175	0.187
.trust_t3_3 ~~						
.trust_t5_3	0.354	0.102	3.469	0.001	0.354	0.399
.trust_t1_4 ~~						
.trust_t3_4	-0.030	0.046	-0.650	0.516	-0.030	-0.078
.trust_t5_4	0.039	0.037	1.050	0.294	0.039	0.113
.trust_t3_4 ~~						
.trust_t5_4	0.081	0.051	1.595	0.111	0.081	0.216
.trust_t1_5 ~~						
.trust_t3_5	0.079	0.046	1.720	0.085	0.079	0.167
.trust_t5_5	0.103	0.043	2.418	0.016	0.103	0.273

.trust_t3_5	~~						
.trust_t5_5		0.149	0.058	2.563	0.010	0.149	0.365
.trust_t1_6	~~						
.trust_t3_6		0.134	0.052	2.580	0.010	0.134	0.333
.trust_t5_6		0.054	0.052	1.052	0.293	0.054	0.144
.trust_t3_6	~~						
.trust_t5_6		0.150	0.046	3.278	0.001	0.150	0.366
.trust_t1_7	~~						
.trust_t3_7		0.225	0.074	3.048	0.002	0.225	0.333
.trust_t5_7		0.215	0.099	2.163	0.031	0.215	0.276
.trust_t3_7	~~						
.trust_t5_7		0.212	0.088	2.416	0.016	0.212	0.316
.trust_t1_8	~~						
.trust_t3_8		0.124	0.071	1.745	0.081	0.124	0.186
.trust_t5_8		0.114	0.066	1.726	0.084	0.114	0.173
.trust_t3_8	~~						
.trust_t5_8		0.220	0.068	3.234	0.001	0.220	0.365
.trust_t1_9	~~						
.trust_t3_9		0.113	0.055	2.073	0.038	0.113	0.205
.trust_t5_9		0.068	0.061	1.110	0.267	0.068	0.112
.trust_t3_9	~~						
.trust_t5_9		0.148	0.048	3.080	0.002	0.148	0.336
.trust_t1_10	~~						
.trust_t3_10		0.267	0.060	4.476	0.000	0.267	0.375
.trust_t5_10		0.232	0.066	3.496	0.000	0.232	0.330
.trust_t3_10	~~						
.trust_t5_10		0.138	0.065	2.110	0.035	0.138	0.221
trust_t1	~~						
trust_t2		0.785	0.134	5.842	0.000	0.751	0.751
trust_t3		0.778	0.135	5.757	0.000	0.683	0.683
trust_t2	~~						
trust_t3		1.076	0.183	5.894	0.000	0.800	0.800

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.trst_1_1 (it1)	4.712	0.082	57.807	0.000	4.712	3.618
.trst_1_2	4.646	0.101	46.181	0.000	4.646	3.616
.trst_1_3	4.440	0.102	43.357	0.000	4.440	3.230
.trst_1_4	4.736	0.082	57.691	0.000	4.736	4.349
.trst_1_5	4.910	0.080	61.147	0.000	4.910	4.553
.trst_1_6	4.831	0.078	61.837	0.000	4.831	4.481
.trst_1_7	4.513	0.096	47.229	0.000	4.513	3.540
.trst_1_8	4.468	0.094	47.775	0.000	4.468	3.605
.trst_1_9	4.585	0.096	47.530	0.000	4.585	3.566
.trst_1_10	4.556	0.097	46.919	0.000	4.556	3.424
.trst_3_1 (it1)	4.712	0.082	57.807	0.000	4.712	3.630
.trst_3_2	4.521	0.100	45.209	0.000	4.521	3.227
.trst_3_3	4.307	0.106	40.690	0.000	4.307	2.979
.trst_3_4	4.710	0.091	51.990	0.000	4.710	3.747
.trst_3_5	4.854	0.083	58.388	0.000	4.854	3.932
.trst_3_6	4.704	0.090	52.318	0.000	4.704	3.795
.trst_3_7	4.610	0.095	48.783	0.000	4.610	3.481
.trst_3_8	4.576	0.090	50.687	0.000	4.576	3.477
.trst_3_9	4.684	0.091	51.335	0.000	4.684	3.654

.trs_3_10	4.573	0.105	43.508	0.000	4.573	3.246
.trst_5_1 (it1)	4.712	0.082	57.807	0.000	4.712	3.277
.trst_5_2	4.566	0.094	48.792	0.000	4.566	3.167
.trst_5_3	4.259	0.100	42.444	0.000	4.259	2.947
.trst_5_4	4.770	0.089	53.645	0.000	4.770	3.647
.trst_5_5	4.820	0.086	55.926	0.000	4.820	3.894
.trst_5_6	4.762	0.095	50.161	0.000	4.762	3.659
.trst_5_7	4.603	0.104	44.399	0.000	4.603	3.129
.trst_5_8	4.517	0.097	46.342	0.000	4.517	3.246
.trst_5_9	4.689	0.097	48.180	0.000	4.689	3.352
.trs_5_10	4.654	0.103	45.183	0.000	4.654	3.121
trust_t1	0.000				0.000	0.000
trust_t2	0.000				0.000	0.000
trust_t3	0.000				0.000	0.000

Variiances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.trust_t1_1	0.810	0.125	6.499	0.000	0.810	0.478
.trust_t1_2	0.766	0.108	7.087	0.000	0.766	0.464
.trust_t1_3	1.105	0.155	7.144	0.000	1.105	0.585
.trust_t1_4	0.353	0.053	6.662	0.000	0.353	0.298
.trust_t1_5	0.434	0.060	7.295	0.000	0.434	0.374
.trust_t1_6	0.371	0.069	5.384	0.000	0.371	0.319
.trust_t1_7	0.784	0.112	6.968	0.000	0.784	0.482
.trust_t1_8	0.729	0.111	6.557	0.000	0.729	0.474
.trust_t1_9	0.762	0.115	6.644	0.000	0.762	0.461
.trust_t1_10	0.800	0.100	8.009	0.000	0.800	0.452
.trust_t3_1	0.451	0.059	7.616	0.000	0.451	0.267
.trust_t3_2	0.729	0.105	6.925	0.000	0.729	0.371
.trust_t3_3	0.998	0.126	7.903	0.000	0.998	0.477
.trust_t3_4	0.420	0.070	5.964	0.000	0.420	0.266
.trust_t3_5	0.509	0.123	4.154	0.000	0.509	0.334
.trust_t3_6	0.434	0.054	8.070	0.000	0.434	0.283
.trust_t3_7	0.583	0.093	6.291	0.000	0.583	0.332
.trust_t3_8	0.607	0.077	7.872	0.000	0.607	0.351
.trust_t3_9	0.402	0.048	8.286	0.000	0.402	0.245
.trust_t3_10	0.632	0.073	8.685	0.000	0.632	0.319
.trust_t5_1	0.602	0.095	6.354	0.000	0.602	0.291
.trust_t5_2	0.613	0.091	6.727	0.000	0.613	0.295
.trust_t5_3	0.791	0.130	6.104	0.000	0.791	0.378
.trust_t5_4	0.333	0.051	6.505	0.000	0.333	0.195
.trust_t5_5	0.327	0.061	5.384	0.000	0.327	0.213
.trust_t5_6	0.385	0.064	6.037	0.000	0.385	0.227
.trust_t5_7	0.773	0.129	6.004	0.000	0.773	0.357
.trust_t5_8	0.601	0.094	6.410	0.000	0.601	0.310
.trust_t5_9	0.483	0.083	5.802	0.000	0.483	0.247
.trust_t5_10	0.618	0.114	5.426	0.000	0.618	0.278
trust_t1	0.886	0.126	7.053	0.000	1.000	1.000
trust_t2	1.234	0.189	6.517	0.000	1.000	1.000
trust_t3	1.466	0.215	6.819	0.000	1.000	1.000

	trust_t1	trust_t2	trust_t3	total
alpha	0.9251556	0.9530783	0.9614793	0.9722276
omega	0.9239936	0.9530831	0.9617884	0.9689944

```

omega2 0.9239936 0.9530831 0.9617884 0.9689944
omega3 0.9174769 0.9489275 0.9720939 0.9705169
avevar 0.5490439 0.6704553 0.7159735 0.6517818

```

Model 3 (strong invariance): CFA with constrained factor loadings, intercepts, and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 94 iterations

```

Optimization method           NLMINB
Number of free parameters     123
Number of equality constraints  38

Number of observations        179

Estimator                     ML      Robust
Model Fit Test Statistic     1139.172  710.918
Degrees of freedom            410      410
P-value (Chi-square)         0.000    0.000
Scaling correction factor     1.602
  for the Satorra-Bentler correction

```

Model test baseline model:

```

Minimum Function Test Statistic  5951.325  3293.464
Degrees of freedom               435      435
P-value                          0.000    0.000

```

User model versus baseline model:

```

Comparative Fit Index (CFI)      0.868    0.895
Tucker-Lewis Index (TLI)         0.860    0.888

Robust Comparative Fit Index (CFI)  0.907
Robust Tucker-Lewis Index (TLI)    0.901

```

Loglikelihood and Information Criteria:

```

Loglikelihood user model (H0)     -6660.229 -6660.229
Loglikelihood unrestricted model (H1) -6090.643 -6090.643

Number of free parameters         85      85
Akaike (AIC)                     13490.458 13490.458
Bayesian (BIC)                   13761.386 13761.386
Sample-size adjusted Bayesian (BIC) 13492.196 13492.196

```

Root Mean Square Error of Approximation:

```

RMSEA                            0.100    0.064
90 Percent Confidence Interval    0.093  0.107    0.058  0.070
P-value RMSEA <= 0.05           0.000    0.000

Robust RMSEA                      0.081
90 Percent Confidence Interval    0.071  0.091

```

Standardized Root Mean Square Residual:

SRMR 0.064 0.064

Parameter Estimates:

Information Expected
 Information saturated (h1) model Structured
 Standard Errors Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
trust_t1 =~						
trst_t1_1	1.000				0.942	0.723
trst_t1_2 (a1)	1.001	0.045	22.108	0.000	0.943	0.732
trst_t1_3 (a2)	0.946	0.046	20.431	0.000	0.890	0.644
trst_t1_4 (a3)	0.969	0.044	21.778	0.000	0.912	0.838
trst_t1_5 (a4)	0.909	0.047	19.264	0.000	0.856	0.792
trst_t1_6 (a5)	0.947	0.039	24.314	0.000	0.891	0.825
trst_t1_7 (a6)	0.970	0.051	18.942	0.000	0.914	0.716
trst_t1_8 (a7)	0.953	0.042	22.476	0.000	0.897	0.723
trst_t1_9 (a8)	1.000	0.050	19.957	0.000	0.942	0.731
trst_1_10 (a9)	1.043	0.050	20.957	0.000	0.982	0.738
trust_t2 =~						
trst_t3_1	1.000				1.112	0.856
trst_t3_2 (a1)	1.001	0.045	22.108	0.000	1.113	0.793
trst_t3_3 (a2)	0.946	0.046	20.431	0.000	1.051	0.725
trst_t3_4 (a3)	0.969	0.044	21.778	0.000	1.077	0.857
trst_t3_5 (a4)	0.909	0.047	19.264	0.000	1.011	0.817
trst_t3_6 (a5)	0.947	0.039	24.314	0.000	1.053	0.846
trst_t3_7 (a6)	0.970	0.051	18.942	0.000	1.079	0.816
trst_t3_8 (a7)	0.953	0.042	22.476	0.000	1.060	0.804
trst_t3_9 (a8)	1.000	0.050	19.957	0.000	1.112	0.868
trst_3_10 (a9)	1.043	0.050	20.957	0.000	1.160	0.824
trust_t3 =~						
trst_t5_1	1.000				1.211	0.842
trst_t5_2 (a1)	1.001	0.045	22.108	0.000	1.213	0.840
trst_t5_3 (a2)	0.946	0.046	20.431	0.000	1.145	0.789
trst_t5_4 (a3)	0.969	0.044	21.778	0.000	1.173	0.897
trst_t5_5 (a4)	0.909	0.047	19.264	0.000	1.102	0.887
trst_t5_6 (a5)	0.947	0.039	24.314	0.000	1.147	0.880
trst_t5_7 (a6)	0.970	0.051	18.942	0.000	1.175	0.800
trst_t5_8 (a7)	0.953	0.042	22.476	0.000	1.154	0.830
trst_t5_9 (a8)	1.000	0.050	19.957	0.000	1.211	0.867
trst_5_10 (a9)	1.043	0.050	20.957	0.000	1.263	0.848

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.trust_t1_1 ~~						
.trust_t3_1	0.065	0.065	1.004	0.316	0.065	0.108
.trust_t5_1	0.236	0.073	3.237	0.001	0.236	0.338
.trust_t3_1 ~~						
.trust_t5_1	0.104	0.051	2.038	0.042	0.104	0.199

.trust_t1_2	~~						
.trust_t3_2		0.091	0.080	1.133	0.257	0.091	0.121
.trust_t5_2		0.144	0.063	2.275	0.023	0.144	0.210
.trust_t3_2	~~						
.trust_t5_2		0.106	0.068	1.552	0.121	0.106	0.158
.trust_t1_3	~~						
.trust_t3_3		0.240	0.103	2.322	0.020	0.240	0.228
.trust_t5_3		0.166	0.109	1.533	0.125	0.166	0.177
.trust_t3_3	~~						
.trust_t5_3		0.355	0.102	3.474	0.001	0.355	0.399
.trust_t1_4	~~						
.trust_t3_4		-0.030	0.046	-0.658	0.511	-0.030	-0.078
.trust_t5_4		0.038	0.037	1.035	0.301	0.038	0.111
.trust_t3_4	~~						
.trust_t5_4		0.079	0.051	1.567	0.117	0.079	0.212
.trust_t1_5	~~						
.trust_t3_5		0.079	0.046	1.720	0.085	0.079	0.167
.trust_t5_5		0.100	0.042	2.360	0.018	0.100	0.265
.trust_t3_5	~~						
.trust_t5_5		0.148	0.058	2.544	0.011	0.148	0.363
.trust_t1_6	~~						
.trust_t3_6		0.129	0.052	2.499	0.012	0.129	0.319
.trust_t5_6		0.053	0.051	1.022	0.307	0.053	0.139
.trust_t3_6	~~						
.trust_t5_6		0.150	0.046	3.287	0.001	0.150	0.365
.trust_t1_7	~~						
.trust_t3_7		0.224	0.074	3.017	0.003	0.224	0.328
.trust_t5_7		0.215	0.099	2.157	0.031	0.215	0.274
.trust_t3_7	~~						
.trust_t5_7		0.214	0.088	2.433	0.015	0.214	0.317
.trust_t1_8	~~						
.trust_t3_8		0.121	0.071	1.702	0.089	0.121	0.180
.trust_t5_8		0.116	0.067	1.741	0.082	0.116	0.174
.trust_t3_8	~~						
.trust_t5_8		0.221	0.068	3.240	0.001	0.221	0.364
.trust_t1_9	~~						
.trust_t3_9		0.112	0.055	2.038	0.042	0.112	0.200
.trust_t5_9		0.067	0.062	1.086	0.277	0.067	0.109
.trust_t3_9	~~						
.trust_t5_9		0.150	0.048	3.109	0.002	0.150	0.338
.trust_t1_10	~~						
.trust_t3_10		0.270	0.060	4.506	0.000	0.270	0.377
.trust_t5_10		0.230	0.067	3.459	0.001	0.230	0.325
.trust_t3_10	~~						
.trust_t5_10		0.138	0.065	2.107	0.035	0.138	0.220
trust_t1	~~						
trust_t2		0.785	0.134	5.842	0.000	0.750	0.750
trust_t3		0.779	0.135	5.759	0.000	0.683	0.683
trust_t2	~~						
trust_t3		1.078	0.183	5.904	0.000	0.800	0.800

Intercepts:

		Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.trs_1_1	(it1)	4.719	0.078	60.627	0.000	4.719	3.625

.trs_1_2 (it2)	4.579	0.080	57.134	0.000	4.579	3.556
.trs_1_3 (it3)	4.332	0.085	50.963	0.000	4.332	3.136
.trs_1_4 (it4)	4.742	0.074	64.404	0.000	4.742	4.358
.trs_1_5 (it5)	4.862	0.071	68.455	0.000	4.862	4.498
.trs_1_6 (it6)	4.782	0.075	63.355	0.000	4.782	4.426
.trs_1_7 (it7)	4.586	0.083	55.198	0.000	4.586	3.595
.trs_1_8 (it8)	4.525	0.078	57.844	0.000	4.525	3.647
.trs_1_9 (it9)	4.668	0.081	57.392	0.000	4.668	3.624
.tr_1_10 (it10)	4.609	0.087	52.712	0.000	4.609	3.465
.trs_3_1 (it1)	4.719	0.078	60.627	0.000	4.719	3.633
.trs_3_2 (it2)	4.579	0.080	57.134	0.000	4.579	3.263
.trs_3_3 (it3)	4.332	0.085	50.963	0.000	4.332	2.988
.trs_3_4 (it4)	4.742	0.074	64.404	0.000	4.742	3.773
.trs_3_5 (it5)	4.862	0.071	68.455	0.000	4.862	3.929
.trs_3_6 (it6)	4.782	0.075	63.355	0.000	4.782	3.845
.trs_3_7 (it7)	4.586	0.083	55.198	0.000	4.586	3.467
.trs_3_8 (it8)	4.525	0.078	57.844	0.000	4.525	3.435
.trs_3_9 (it9)	4.668	0.081	57.392	0.000	4.668	3.645
.tr_3_10 (it10)	4.609	0.087	52.712	0.000	4.609	3.276
.trs_5_1 (it1)	4.719	0.078	60.627	0.000	4.719	3.281
.trs_5_2 (it2)	4.579	0.080	57.134	0.000	4.579	3.173
.trs_5_3 (it3)	4.332	0.085	50.963	0.000	4.332	2.985
.trs_5_4 (it4)	4.742	0.074	64.404	0.000	4.742	3.627
.trs_5_5 (it5)	4.862	0.071	68.455	0.000	4.862	3.916
.trs_5_6 (it6)	4.782	0.075	63.355	0.000	4.782	3.669
.trs_5_7 (it7)	4.586	0.083	55.198	0.000	4.586	3.123
.trs_5_8 (it8)	4.525	0.078	57.844	0.000	4.525	3.253
.trs_5_9 (it9)	4.668	0.081	57.392	0.000	4.668	3.341
.tr_5_10 (it10)	4.609	0.087	52.712	0.000	4.609	3.095
trst_t1	0.000				0.000	0.000
trst_t2	0.000				0.000	0.000
trst_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.trust_t1_1	0.808	0.124	6.490	0.000	0.808	0.477
.trust_t1_2	0.770	0.108	7.130	0.000	0.770	0.464
.trust_t1_3	1.117	0.155	7.208	0.000	1.117	0.585
.trust_t1_4	0.352	0.053	6.668	0.000	0.352	0.297
.trust_t1_5	0.435	0.059	7.324	0.000	0.435	0.372
.trust_t1_6	0.373	0.069	5.433	0.000	0.373	0.319
.trust_t1_7	0.792	0.113	7.037	0.000	0.792	0.487
.trust_t1_8	0.734	0.111	6.594	0.000	0.734	0.477
.trust_t1_9	0.773	0.115	6.719	0.000	0.773	0.466
.trust_t1_10	0.806	0.100	8.058	0.000	0.806	0.455
.trust_t3_1	0.450	0.059	7.614	0.000	0.450	0.267
.trust_t3_2	0.730	0.105	6.943	0.000	0.730	0.371
.trust_t3_3	0.997	0.127	7.878	0.000	0.997	0.474
.trust_t3_4	0.420	0.070	5.969	0.000	0.420	0.266
.trust_t3_5	0.508	0.123	4.139	0.000	0.508	0.332
.trust_t3_6	0.439	0.054	8.167	0.000	0.439	0.284
.trust_t3_7	0.585	0.093	6.316	0.000	0.585	0.335
.trust_t3_8	0.612	0.077	7.933	0.000	0.612	0.353
.trust_t3_9	0.404	0.048	8.321	0.000	0.404	0.246

.trust_t3_10	0.635	0.073	8.706	0.000	0.635	0.321
.trust_t5_1	0.601	0.095	6.349	0.000	0.601	0.291
.trust_t5_2	0.613	0.091	6.719	0.000	0.613	0.294
.trust_t5_3	0.795	0.130	6.134	0.000	0.795	0.377
.trust_t5_4	0.333	0.051	6.532	0.000	0.333	0.195
.trust_t5_5	0.328	0.061	5.393	0.000	0.328	0.213
.trust_t5_6	0.384	0.064	6.029	0.000	0.384	0.226
.trust_t5_7	0.776	0.129	6.012	0.000	0.776	0.360
.trust_t5_8	0.603	0.094	6.413	0.000	0.603	0.312
.trust_t5_9	0.485	0.083	5.826	0.000	0.485	0.248
.trust_t5_10	0.622	0.114	5.454	0.000	0.622	0.281
trust_t1	0.887	0.126	7.052	0.000	1.000	1.000
trust_t2	1.236	0.189	6.525	0.000	1.000	1.000
trust_t3	1.467	0.215	6.825	0.000	1.000	1.000

	trust_t1	trust_t2	trust_t3	total
alpha	0.9251556	0.9530783	0.9614793	0.9722276
omega	0.9235466	0.9530109	0.9617040	0.9689827
omega2	0.9235466	0.9530109	0.9617040	0.9689827
omega3	0.9174948	0.9499704	0.9723836	0.9708656
avevar	0.5474392	0.6700696	0.7154802	0.6509433

Compare the three models

	model1	model2	model3
npar	121.000	103.000	85.000
fmin	3.074	3.118	3.182
chisq	1100.604	1116.343	1139.172
df	374.000	392.000	410.000
pvalue	0.000	0.000	0.000
chisq.scaled	659.420	679.125	710.918
df.scaled	374.000	392.000	410.000
pvalue.scaled	0.000	0.000	0.000
chisq.scaling.factor	1.669	1.644	1.602
baseline.chisq	5951.325	5951.325	5951.325
baseline.df	435.000	435.000	435.000
baseline.pvalue	0.000	0.000	0.000
baseline.chisq.scaled	3293.464	3293.464	3293.464
baseline.df.scaled	435.000	435.000	435.000
baseline.pvalue.scaled	0.000	0.000	0.000
baseline.chisq.scaling.factor	1.807	1.807	1.807
cfi	0.868	0.869	0.868
tli	0.847	0.854	0.860
nmfi	0.847	0.854	0.860
rfi	0.785	0.792	0.797
nfi	0.815	0.812	0.809
pnfi	0.701	0.732	0.762
ifi	0.870	0.870	0.868
rni	0.868	0.869	0.868
cfi.scaled	0.900	0.900	0.895
tli.scaled	0.884	0.889	0.888
cfi.robust	0.908	0.909	0.907
tli.robust	0.893	0.899	0.901

nnfi.scaled	0.884	0.889	0.888
nnfi.robust	0.893	0.899	0.901
rfi.scaled	0.767	0.771	0.771
nfi.scaled	0.800	0.794	0.784
ifi.scaled	0.902	0.901	0.896
rni.scaled	0.900	0.900	0.895
rni.robust	0.908	0.909	0.907
logl	-6640.945	-6648.815	-6660.229
unrestricted.logl	-6090.643	-6090.643	-6090.643
aic	13523.890	13503.629	13490.458
bic	13909.563	13831.930	13761.386
ntotal	179.000	179.000	179.000
bic2	13526.363	13505.735	13492.196
rmsea	0.104	0.102	0.100
rmsea.ci.lower	0.097	0.095	0.093
rmsea.ci.upper	0.111	0.109	0.107
rmsea.pvalue	0.000	0.000	0.000
rmsea.scaled	0.065	0.064	0.064
rmsea.ci.lower.scaled	0.059	0.058	0.058
rmsea.ci.upper.scaled	0.072	0.070	0.070
rmsea.pvalue.scaled	0.000	0.000	0.000
rmsea.robust	0.084	0.082	0.081
rmsea.ci.lower.robust	0.074	0.072	0.071
rmsea.ci.upper.robust	0.095	0.092	0.091
rmsea.pvalue.robust	NA	NA	NA
rmr	0.099	0.107	0.108
rmr_nomean	0.101	0.109	0.110
srmr	0.058	0.063	0.064
srmr_bentler	0.058	0.063	0.064
srmr_bentler_nomean	0.059	0.064	0.064
crmr	0.059	0.062	0.063
crmr_nomean	0.060	0.060	0.060
srmr_mplus	0.058	0.061	0.062
srmr_mplus_nomean	0.058	0.059	0.059
cn_05	69.323	71.418	72.999
cn_01	72.650	74.769	76.351
gfi	0.866	0.859	0.857
agfi	0.823	0.822	0.827
pgfi	0.654	0.680	0.710
mfi	0.131	0.132	0.130
ecvi	7.501	7.387	7.314

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell1fit	374	13524	13910	1100.6			
modell2fit	392	13504	13832	1116.3	14.064	18	0.7249

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell1fit	374	13524	13910	1100.6			
modell3fit	410	13490	13761	1139.2	42.385	36	0.2149

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model2fit	392	13504	13832	1116.3			
model3fit	410	13490	13761	1139.2	32.577	18	0.01877 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Interaction Perceptions

Dialogue Quality

English items

Please state for each statement the extent to which you agree or disagree:

- a. I felt like I was engaged in an active dialogue with Robin
- b. My interactions with Robin felt like a back and forth conversation
- c. I felt as if Robin and I were involved in a mutual task
- d. Robin responded quickly to my inputs and requests
- e. Robin was efficient in responding to my activities

CFA

Model 1 (configural model): CFA with 3 correlated waves, with covarying residuals for the same items at T1, T2 and T3, but no equality constraints imposed

lavaan 0.6-3 ended normally after 74 iterations

Optimization method	NLMINB	
Number of free parameters	63	
Number of equality constraints	2	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	124.252	90.439
Degrees of freedom	74	74
P-value (Chi-square)	0.000	0.094
Scaling correction factor		1.374
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1917.243	1359.145
Degrees of freedom	105	105
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.972	0.987
Tucker-Lewis Index (TLI)	0.961	0.981
Robust Comparative Fit Index (CFI)		0.987
Robust Tucker-Lewis Index (TLI)		0.982

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-3901.686	-3901.686
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Loglikelihood unrestricted model (H1)	-3839.559	-3839.559
Number of free parameters	61	61
Akaike (AIC)	7925.371	7925.371
Bayesian (BIC)	8119.802	8119.802
Sample-size adjusted Bayesian (BIC)	7926.618	7926.618

Root Mean Square Error of Approximation:

RMSEA		0.062	0.035
90 Percent Confidence Interval	0.042	0.080	0.000 0.055
P-value RMSEA <= 0.05		0.153	0.882
Robust RMSEA			0.041
90 Percent Confidence Interval			0.000 0.068

Standardized Root Mean Square Residual:

SRMR	0.066	0.066
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
dialoguequality_t1 =~					
dialgqlty_t1_1	1.000				1.321
dialgqlty_t1_2	0.874	0.076	11.433	0.000	1.155
dialgqlty_t1_3	0.876	0.071	12.342	0.000	1.158
dialgqlty_t1_4	0.405	0.085	4.743	0.000	0.535
dialgqlty_t1_5	0.802	0.066	12.107	0.000	1.059
dialoguequality_t2 =~					
dialgqlty_t3_1	1.000				1.368
dialgqlty_t3_2	0.878	0.055	16.012	0.000	1.201
dialgqlty_t3_3	0.868	0.044	19.647	0.000	1.187
dialgqlty_t3_4	0.450	0.087	5.169	0.000	0.615
dialgqlty_t3_5	0.762	0.072	10.609	0.000	1.042
dialoguequality_t3 =~					
dialgqlty_t5_1	1.000				1.507
dialgqlty_t5_2	0.944	0.057	16.533	0.000	1.423
dialgqlty_t5_3	0.907	0.059	15.417	0.000	1.367
dialgqlty_t5_4	0.509	0.080	6.325	0.000	0.767
dialgqlty_t5_5	0.853	0.068	12.596	0.000	1.286

Std.all

- 0.912
- 0.769
- 0.813
- 0.472
- 0.741

0.904
 0.842
 0.818
 0.454
 0.698

0.898
 0.878
 0.883
 0.543
 0.795

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
.dialoguequality_t1_1 ~~					
.dialgqlty_t3_1	-0.143	0.072	-1.976	0.048	-0.143
.dialgqlty_t5_1	-0.070	0.071	-0.993	0.321	-0.070
.dialoguequality_t3_1 ~~					
.dialgqlty_t5_1	0.058	0.141	0.415	0.678	0.058
.dialoguequality_t1_2 ~~					
.dialgqlty_t3_2	0.294	0.122	2.408	0.016	0.294
.dialgqlty_t5_2	0.091	0.110	0.826	0.409	0.091
.dialoguequality_t3_2 ~~					
.dialgqlty_t5_2	0.187	0.106	1.772	0.076	0.187
.dialoguequality_t1_3 ~~					
.dialgqlty_t3_3	0.178	0.093	1.912	0.056	0.178
.dialgqlty_t5_3	0.141	0.070	1.999	0.046	0.141
.dialoguequality_t3_3 ~~					
.dialgqlty_t5_3	0.184	0.073	2.516	0.012	0.184
.dialoguequality_t1_4 ~~					
.dialgqlty_t3_4	0.336	0.111	3.020	0.003	0.336
.dialgqlty_t5_4	0.494	0.099	4.979	0.000	0.494
.dialoguequality_t3_4 ~~					
.dialgqlty_t5_4	0.656	0.152	4.327	0.000	0.656
.dialoguequality_t1_5 ~~					
.dialgqlty_t3_5	0.444	0.126	3.536	0.000	0.444
.dialgqlty_t5_5	0.244	0.126	1.941	0.052	0.244
.dialoguequality_t3_5 ~~					
.dialgqlty_t5_5	0.572	0.219	2.609	0.009	0.572
dialoguequality_t1 ~~					
dialoguqlty_t2	0.975	0.190	5.122	0.000	0.539
dialoguqlty_t3	0.942	0.171	5.516	0.000	0.473
dialoguequality_t2 ~~					
dialoguqlty_t3	1.465	0.189	7.769	0.000	0.711

Std.all

-0.370
 -0.161

0.123

0.398
 0.122

0.313

0.257

0.234

0.302

0.279

0.416

0.458

0.433

0.258

0.545

0.539

0.473

0.711

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.dlgq_1_1 (it1)	4.387	0.090	48.719	0.000	4.387	3.027
.dlgq_1_2	4.426	0.110	40.319	0.000	4.426	2.949
.dlgq_1_3	4.225	0.101	41.639	0.000	4.225	2.967
.dlgq_1_4	5.800	0.081	71.250	0.000	5.800	5.117
.dlgq_1_5	4.735	0.100	47.479	0.000	4.735	3.311
.dlgq_3_1 (it1)	4.387	0.090	48.719	0.000	4.387	2.899
.dlgq_3_2	4.368	0.101	43.460	0.000	4.368	3.063
.dlgq_3_3	4.161	0.105	39.803	0.000	4.161	2.865
.dlgq_3_4	5.498	0.096	57.140	0.000	5.498	4.063
.dlgq_3_5	4.512	0.104	43.431	0.000	4.512	3.024
.dlgq_5_1 (it1)	4.387	0.090	48.719	0.000	4.387	2.616
.dlgq_5_2	4.188	0.109	38.306	0.000	4.188	2.583
.dlgq_5_3	4.194	0.105	39.929	0.000	4.194	2.707
.dlgq_5_4	5.484	0.099	55.652	0.000	5.484	3.880
.dlgq_5_5	4.480	0.107	41.825	0.000	4.480	2.770
dlgqlt_1	0.000				0.000	0.000
dlgqlt_2	0.000				0.000	0.000
dlgqlt_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.dialgqlty_t1_1	0.354	0.085	4.167	0.000	0.354	0.169
.dialgqlty_t1_2	0.920	0.196	4.683	0.000	0.920	0.408
.dialgqlty_t1_3	0.686	0.120	5.699	0.000	0.686	0.338
.dialgqlty_t1_4	0.999	0.135	7.388	0.000	0.999	0.777
.dialgqlty_t1_5	0.924	0.133	6.922	0.000	0.924	0.452
.dialgqlty_t3_1	0.419	0.106	3.950	0.000	0.419	0.183
.dialgqlty_t3_2	0.592	0.096	6.177	0.000	0.592	0.291
.dialgqlty_t3_3	0.699	0.128	5.459	0.000	0.699	0.331
.dialgqlty_t3_4	1.454	0.178	8.186	0.000	1.454	0.794

.dialgqlty_t3_5	1.141	0.237	4.816	0.000	1.141	0.512
.dialgqlty_t5_1	0.542	0.212	2.558	0.011	0.542	0.193
.dialgqlty_t5_2	0.605	0.123	4.918	0.000	0.605	0.230
.dialgqlty_t5_3	0.531	0.099	5.384	0.000	0.531	0.221
.dialgqlty_t5_4	1.410	0.165	8.535	0.000	1.410	0.706
.dialgqlty_t5_5	0.964	0.237	4.070	0.000	0.964	0.368
dialoguqlty_t1	1.746	0.221	7.910	0.000	1.000	1.000
dialoguqlty_t2	1.872	0.221	8.453	0.000	1.000	1.000
dialoguqlty_t3	2.270	0.267	8.500	0.000	1.000	1.000

	dialoguequality_t1	dialoguequality_t2	dialoguequality_t3	total
alpha	0.8584495	0.8561525	0.8963711	0.9166933
omega	0.8756198	0.8719194	0.9086899	0.9139191
omega2	0.8756198	0.8719194	0.9086899	0.9139191
omega3	0.8997032	0.8970521	0.9529392	0.9442605
avevar	0.6001860	0.5897338	0.6747775	0.6252741

Model 2 (weak invariance): CFA with constrained factor loadings and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 73 iterations

Optimization method	NLMINB	
Number of free parameters	63	
Number of equality constraints	10	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	127.815	94.521
Degrees of freedom	82	82
P-value (Chi-square)	0.001	0.163
Scaling correction factor		1.352
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1917.243	1359.145
Degrees of freedom	105	105
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.975	0.990
Tucker-Lewis Index (TLI)	0.968	0.987
Robust Comparative Fit Index (CFI)		0.990
Robust Tucker-Lewis Index (TLI)		0.988

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-3903.467	-3903.467
Loglikelihood unrestricted model (H1)	-3839.559	-3839.559

Number of free parameters	53	53
Akaike (AIC)	7912.934	7912.934
Bayesian (BIC)	8081.865	8081.865
Sample-size adjusted Bayesian (BIC)	7914.017	7914.017

Root Mean Square Error of Approximation:

RMSEA	0.056	0.029
90 Percent Confidence Interval	0.036 0.074	0.000 0.050
P-value RMSEA <= 0.05	0.291	0.952
Robust RMSEA		0.034
90 Percent Confidence Interval		0.000 0.061

Standardized Root Mean Square Residual:

SRMR	0.070	0.070
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
dialoguequality_t1 =~					
dlgql_1_1	1.000				1.303
dlgql_1_2 (a1)	0.903	0.039	23.204	0.000	1.177
dlgql_1_3 (a2)	0.884	0.035	25.185	0.000	1.152
dlgql_1_4 (a3)	0.452	0.063	7.207	0.000	0.589
dlgql_1_5 (a4)	0.813	0.051	15.930	0.000	1.060
dialoguequality_t2 =~					
dlgql_3_1	1.000				1.342
dlgql_3_2 (a1)	0.903	0.039	23.204	0.000	1.213
dlgql_3_3 (a2)	0.884	0.035	25.185	0.000	1.187
dlgql_3_4 (a3)	0.452	0.063	7.207	0.000	0.607
dlgql_3_5 (a4)	0.813	0.051	15.930	0.000	1.092
dialoguequality_t3 =~					
dlgql_5_1	1.000				1.557
dlgql_5_2 (a1)	0.903	0.039	23.204	0.000	1.406
dlgql_5_3 (a2)	0.884	0.035	25.185	0.000	1.376
dlgql_5_4 (a3)	0.452	0.063	7.207	0.000	0.704
dlgql_5_5 (a4)	0.813	0.051	15.930	0.000	1.266

Std.all

0.906
0.777
0.812
0.508
0.742

0.897

0.846
0.818
0.450
0.715

0.906
0.873
0.885
0.509
0.789

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
.dialoguequality_t1_1 ~~					
.dialgqlty_t3_1	-0.137	0.069	-1.983	0.047	-0.137
.dialgqlty_t5_1	-0.075	0.073	-1.033	0.302	-0.075
.dialoguequality_t3_1 ~~					
.dialgqlty_t5_1	0.055	0.140	0.394	0.693	0.055
.dialoguequality_t1_2 ~~					
.dialgqlty_t3_2	0.289	0.121	2.381	0.017	0.289
.dialgqlty_t5_2	0.092	0.113	0.810	0.418	0.092
.dialoguequality_t3_2 ~~					
.dialgqlty_t5_2	0.186	0.108	1.725	0.085	0.186
.dialoguequality_t1_3 ~~					
.dialgqlty_t3_3	0.175	0.091	1.913	0.056	0.175
.dialgqlty_t5_3	0.140	0.071	1.981	0.048	0.140
.dialoguequality_t3_3 ~~					
.dialgqlty_t5_3	0.184	0.074	2.478	0.013	0.184
.dialoguequality_t1_4 ~~					
.dialgqlty_t3_4	0.339	0.112	3.037	0.002	0.339
.dialgqlty_t5_4	0.497	0.100	4.980	0.000	0.497
.dialoguequality_t3_4 ~~					
.dialgqlty_t5_4	0.651	0.151	4.310	0.000	0.651
.dialoguequality_t1_5 ~~					
.dialgqlty_t3_5	0.447	0.127	3.516	0.000	0.447
.dialgqlty_t5_5	0.242	0.125	1.936	0.053	0.242
.dialoguequality_t3_5 ~~					
.dialgqlty_t5_5	0.577	0.223	2.590	0.010	0.577
dialoguequality_t1 ~~					
dialoguqlty_t2	0.950	0.187	5.086	0.000	0.543
dialoguqlty_t3	0.971	0.170	5.700	0.000	0.479
dialoguequality_t2 ~~					
dialoguqlty_t3	1.491	0.185	8.040	0.000	0.714
Std.all					

-0.341
-0.170

0.115

0.397
0.123

0.310

0.253
0.233

0.304

0.281
0.417

0.454

0.437
0.256

0.547

0.543
0.479

0.714

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.dlgq_1_1 (it1)	4.400	0.090	48.818	0.000	4.400	3.060
.dlgq_1_2	4.436	0.110	40.426	0.000	4.436	2.929
.dlgq_1_3	4.238	0.102	41.672	0.000	4.238	2.987
.dlgq_1_4	5.799	0.081	71.330	0.000	5.799	4.995
.dlgq_1_5	4.747	0.100	47.539	0.000	4.747	3.322
.dlgq_3_1 (it1)	4.400	0.090	48.818	0.000	4.400	2.941
.dlgq_3_2	4.382	0.100	43.642	0.000	4.382	3.057
.dlgq_3_3	4.173	0.104	39.943	0.000	4.173	2.875
.dlgq_3_4	5.504	0.096	57.098	0.000	5.504	4.078
.dlgq_3_5	4.527	0.104	43.484	0.000	4.527	2.963
.dlgq_5_1 (it1)	4.400	0.090	48.818	0.000	4.400	2.562
.dlgq_5_2	4.193	0.109	38.337	0.000	4.193	2.604
.dlgq_5_3	4.204	0.105	39.995	0.000	4.204	2.702
.dlgq_5_4	5.476	0.099	55.540	0.000	5.476	3.959
.dlgq_5_5	4.484	0.107	41.871	0.000	4.484	2.793
dlgqlt_1	0.000				0.000	0.000
dlgqlt_2	0.000				0.000	0.000
dlgqlt_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.dialgqlty_t1_1	0.370	0.072	5.113	0.000	0.370	0.179
.dialgqlty_t1_2	0.909	0.188	4.839	0.000	0.909	0.396
.dialgqlty_t1_3	0.686	0.111	6.175	0.000	0.686	0.341
.dialgqlty_t1_4	1.000	0.134	7.475	0.000	1.000	0.742
.dialgqlty_t1_5	0.918	0.133	6.893	0.000	0.918	0.450
.dialgqlty_t3_1	0.436	0.101	4.305	0.000	0.436	0.195
.dialgqlty_t3_2	0.584	0.093	6.287	0.000	0.584	0.284
.dialgqlty_t3_3	0.697	0.124	5.632	0.000	0.697	0.331
.dialgqlty_t3_4	1.453	0.179	8.122	0.000	1.453	0.798
.dialgqlty_t3_5	1.143	0.244	4.680	0.000	1.143	0.489

.dialgqlty_t5_1	0.526	0.206	2.550	0.011	0.526	0.178
.dialgqlty_t5_2	0.615	0.121	5.065	0.000	0.615	0.237
.dialgqlty_t5_3	0.527	0.095	5.526	0.000	0.527	0.218
.dialgqlty_t5_4	1.417	0.165	8.611	0.000	1.417	0.741
.dialgqlty_t5_5	0.974	0.233	4.177	0.000	0.974	0.378
dialoguqlty_t1	1.698	0.204	8.331	0.000	1.000	1.000
dialoguqlty_t2	1.802	0.205	8.775	0.000	1.000	1.000
dialoguqlty_t3	2.423	0.236	10.284	0.000	1.000	1.000

	dialoguequality_t1	dialoguequality_t2	dialoguequality_t3	total
alpha	0.8584495	0.8561525	0.8963711	0.9166933
omega	0.8778001	0.8728188	0.9074818	0.9144833
omega2	0.8778001	0.8728188	0.9074818	0.9144833
omega3	0.9182685	0.9061322	0.9411141	0.9517582
avevar	0.6023250	0.5913421	0.6740739	0.6260493

Model 3 (strong invariance): CFA with constrained factor loadings, intercepts, and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 58 iterations

Optimization method	NLMINB	
Number of free parameters	63	
Number of equality constraints	18	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	150.939	115.652
Degrees of freedom	90	90
P-value (Chi-square)	0.000	0.036
Scaling correction factor		1.305
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1917.243	1359.145
Degrees of freedom	105	105
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.966	0.980
Tucker-Lewis Index (TLI)	0.961	0.976
Robust Comparative Fit Index (CFI)		0.981
Robust Tucker-Lewis Index (TLI)		0.978

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-3915.029	-3915.029
Loglikelihood unrestricted model (H1)	-3839.559	-3839.559

Number of free parameters	45	45
Akaike (AIC)	7920.058	7920.058
Bayesian (BIC)	8063.490	8063.490
Sample-size adjusted Bayesian (BIC)	7920.978	7920.978

Root Mean Square Error of Approximation:

RMSEA	0.062	0.040
90 Percent Confidence Interval	0.044 0.078	0.017 0.057
P-value RMSEA <= 0.05	0.133	0.816
Robust RMSEA		0.046
90 Percent Confidence Interval		0.013 0.068

Standardized Root Mean Square Residual:

SRMR	0.089	0.089
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
dialoguequality_t1 =~					
dlgql_1_1	1.000				1.307
dlgql_1_2 (a1)	0.911	0.038	23.843	0.000	1.191
dlgql_1_3 (a2)	0.878	0.034	25.620	0.000	1.148
dlgql_1_4 (a3)	0.481	0.061	7.840	0.000	0.629
dlgql_1_5 (a4)	0.830	0.050	16.439	0.000	1.084
dialoguequality_t2 =~					
dlgql_3_1	1.000				1.341
dlgql_3_2 (a1)	0.911	0.038	23.843	0.000	1.222
dlgql_3_3 (a2)	0.878	0.034	25.620	0.000	1.178
dlgql_3_4 (a3)	0.481	0.061	7.840	0.000	0.645
dlgql_3_5 (a4)	0.830	0.050	16.439	0.000	1.113
dialoguequality_t3 =~					
dlgql_5_1	1.000				1.572
dlgql_5_2 (a1)	0.911	0.038	23.843	0.000	1.432
dlgql_5_3 (a2)	0.878	0.034	25.620	0.000	1.381
dlgql_5_4 (a3)	0.481	0.061	7.840	0.000	0.756
dlgql_5_5 (a4)	0.830	0.050	16.439	0.000	1.304

Std.all

0.909
0.780
0.810
0.529
0.749

0.897
0.847

0.815
0.470
0.720

0.911
0.876
0.883
0.535
0.797

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv
.dialoguequality_t1_1 ~~					
.dialgqlty_t3_1	-0.128	0.069	-1.863	0.063	-0.128
.dialgqlty_t5_1	-0.051	0.072	-0.708	0.479	-0.051
.dialoguequality_t3_1 ~~					
.dialgqlty_t5_1	0.051	0.139	0.364	0.716	0.051
.dialoguequality_t1_2 ~~					
.dialgqlty_t3_2	0.293	0.123	2.392	0.017	0.293
.dialgqlty_t5_2	0.082	0.114	0.720	0.472	0.082
.dialoguequality_t3_2 ~~					
.dialgqlty_t5_2	0.174	0.109	1.590	0.112	0.174
.dialoguequality_t1_3 ~~					
.dialgqlty_t3_3	0.176	0.090	1.948	0.051	0.176
.dialgqlty_t5_3	0.138	0.071	1.949	0.051	0.138
.dialoguequality_t3_3 ~~					
.dialgqlty_t5_3	0.184	0.075	2.454	0.014	0.184
.dialoguequality_t1_4 ~~					
.dialgqlty_t3_4	0.331	0.112	2.962	0.003	0.331
.dialgqlty_t5_4	0.485	0.100	4.843	0.000	0.485
.dialoguequality_t3_4 ~~					
.dialgqlty_t5_4	0.673	0.151	4.458	0.000	0.673
.dialoguequality_t1_5 ~~					
.dialgqlty_t3_5	0.440	0.129	3.413	0.001	0.440
.dialgqlty_t5_5	0.237	0.127	1.870	0.062	0.237
.dialoguequality_t3_5 ~~					
.dialgqlty_t5_5	0.587	0.226	2.598	0.009	0.587
dialoguequality_t1 ~~					
dialoguqlty_t2	0.928	0.185	5.010	0.000	0.530
dialoguqlty_t3	0.923	0.169	5.470	0.000	0.450
dialoguequality_t2 ~~					
dialoguqlty_t3	1.509	0.184	8.181	0.000	0.716
Std.all					

-0.323
-0.120

0.108

0.400
0.109

0.288

0.253
0.227

0.301

0.271
0.402

0.464

0.428
0.250

0.554

0.530
0.450

0.716

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.dlgq_1_1 (it1)	4.410	0.090	49.073	0.000	4.410	3.069
.dlgq_1_2 (it2)	4.349	0.091	47.654	0.000	4.349	2.848
.dlgq_1_3 (it3)	4.232	0.090	47.033	0.000	4.232	2.987
.dlgq_1_4 (it4)	5.654	0.070	80.541	0.000	5.654	4.753
.dlgq_1_5 (it5)	4.628	0.086	53.795	0.000	4.628	3.197
.dlgq_3_1 (it1)	4.410	0.090	49.073	0.000	4.410	2.948
.dlgq_3_2 (it2)	4.349	0.091	47.654	0.000	4.349	3.015
.dlgq_3_3 (it3)	4.232	0.090	47.033	0.000	4.232	2.928
.dlgq_3_4 (it4)	5.654	0.070	80.541	0.000	5.654	4.116
.dlgq_3_5 (it5)	4.628	0.086	53.795	0.000	4.628	2.995
.dlgq_5_1 (it1)	4.410	0.090	49.073	0.000	4.410	2.557
.dlgq_5_2 (it2)	4.349	0.091	47.654	0.000	4.349	2.660
.dlgq_5_3 (it3)	4.232	0.090	47.033	0.000	4.232	2.708
.dlgq_5_4 (it4)	5.654	0.070	80.541	0.000	5.654	3.997
.dlgq_5_5 (it5)	4.628	0.086	53.795	0.000	4.628	2.828
dlgqlt_1	0.000				0.000	0.000
dlgqlt_2	0.000				0.000	0.000
dlgqlt_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.dialgqlty_t1_1	0.357	0.072	4.963	0.000	0.357	0.173
.dialgqlty_t1_2	0.914	0.191	4.792	0.000	0.914	0.392
.dialgqlty_t1_3	0.690	0.110	6.263	0.000	0.690	0.344
.dialgqlty_t1_4	1.020	0.133	7.684	0.000	1.020	0.721
.dialgqlty_t1_5	0.919	0.134	6.879	0.000	0.919	0.439
.dialgqlty_t3_1	0.438	0.102	4.275	0.000	0.438	0.196
.dialgqlty_t3_2	0.588	0.093	6.333	0.000	0.588	0.283
.dialgqlty_t3_3	0.701	0.122	5.738	0.000	0.701	0.336
.dialgqlty_t3_4	1.471	0.178	8.255	0.000	1.471	0.779
.dialgqlty_t3_5	1.149	0.248	4.634	0.000	1.149	0.481
.dialgqlty_t5_1	0.504	0.204	2.473	0.013	0.504	0.170

.dialgqlty_t5_2	0.622	0.122	5.095	0.000	0.622	0.233
.dialgqlty_t5_3	0.536	0.094	5.695	0.000	0.536	0.220
.dialgqlty_t5_4	1.429	0.164	8.694	0.000	1.429	0.714
.dialgqlty_t5_5	0.976	0.236	4.139	0.000	0.976	0.365
dialoguqlty_t1	1.708	0.203	8.424	0.000	1.000	1.000
dialoguqlty_t2	1.799	0.205	8.794	0.000	1.000	1.000
dialoguqlty_t3	2.470	0.235	10.518	0.000	1.000	1.000

	dialoguequality_t1	dialoguequality_t2	dialoguequality_t3	total
alpha	0.8584495	0.8561525	0.8963711	0.9166933
omega	0.8804126	0.8743493	0.9108144	0.9156990
omega2	0.8804126	0.8743493	0.9108144	0.9156990
omega3	0.9451791	0.9258186	0.9820198	0.9704552
avevar	0.6066131	0.5930838	0.6814349	0.6309152

Compare the three models

	model1	model2	model3
npar	61.000	53.000	45.000
fmin	0.347	0.357	0.422
chisq	124.252	127.815	150.939
df	74.000	82.000	90.000
pvalue	0.000	0.001	0.000
chisq.scaled	90.439	94.521	115.652
df.scaled	74.000	82.000	90.000
pvalue.scaled	0.094	0.163	0.036
chisq.scaling.factor	1.374	1.352	1.305
baseline.chisq	1917.243	1917.243	1917.243
baseline.df	105.000	105.000	105.000
baseline.pvalue	0.000	0.000	0.000
baseline.chisq.scaled	1359.145	1359.145	1359.145
baseline.df.scaled	105.000	105.000	105.000
baseline.pvalue.scaled	0.000	0.000	0.000
baseline.chisq.scaling.factor	1.411	1.411	1.411
cfi	0.972	0.975	0.966
tli	0.961	0.968	0.961
mnfi	0.961	0.968	0.961
rfi	0.908	0.915	0.908
nfi	0.935	0.933	0.921
pnfi	0.659	0.729	0.790
ifi	0.973	0.975	0.967
rni	0.972	0.975	0.966
cfi.scaled	0.987	0.990	0.980
tli.scaled	0.981	0.987	0.976
cfi.robust	0.987	0.990	0.981
tli.robust	0.982	0.988	0.978
mnfi.scaled	0.981	0.987	0.976
mnfi.robust	0.982	0.988	0.978
rfi.scaled	0.906	0.911	0.901
nfi.scaled	0.933	0.930	0.915
ifi.scaled	0.987	0.990	0.980
rni.scaled	0.987	0.990	0.980
rni.robust	0.987	0.990	0.981

logl	-3901.686	-3903.467	-3915.029
unrestricted.logl	-3839.559	-3839.559	-3839.559
aic	7925.371	7912.934	7920.058
bic	8119.802	8081.865	8063.490
ntotal	179.000	179.000	179.000
bic2	7926.618	7914.017	7920.978
rmsea	0.062	0.056	0.062
rmsea.ci.lower	0.042	0.036	0.044
rmsea.ci.upper	0.080	0.074	0.078
rmsea.pvalue	0.153	0.291	0.133
rmsea.scaled	0.035	0.029	0.040
rmsea.ci.lower.scaled	0.000	0.000	0.017
rmsea.ci.upper.scaled	0.055	0.050	0.057
rmsea.pvalue.scaled	0.882	0.952	0.816
rmsea.robust	0.041	0.034	0.046
rmsea.ci.lower.robust	0.000	0.000	0.013
rmsea.ci.upper.robust	0.068	0.061	0.068
rmsea.pvalue.robust	NA	NA	NA
rnr	0.123	0.131	0.161
rnr_nomean	0.110	0.120	0.142
srnr	0.066	0.070	0.089
srnr_bentler	0.066	0.070	0.089
srnr_bentler_nomean	0.053	0.058	0.069
crnr	0.066	0.070	0.089
crnr_nomean	0.051	0.052	0.056
srnr_mplus	0.064	0.069	0.088
srnr_mplus_nomean	0.050	0.053	0.059
cn_05	137.976	146.842	135.180
cn_01	152.556	161.626	148.191
gfi	0.985	0.984	0.980
agfi	0.972	0.973	0.970
pgfi	0.540	0.598	0.654
mfi	0.869	0.880	0.843
ecvi	1.376	1.306	1.346

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell1fit	74	7925.4	8119.8	124.25			
modell2fit	82	7912.9	8081.9	127.81	3.0924	8	0.9284

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell1fit	74	7925.4	8119.8	124.25			
modell3fit	90	7920.1	8063.5	150.94	27.036	16	0.04109 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell2fit	82	7912.9	8081.9	127.81			

```
model3fit 90 7920.1 8063.5 150.94    28.127      8 0.0004507 ***  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
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Privacy Risk

English items

Please state for each statement the extent to which you agree or disagree:

- a. It is risky to share personal information (such as your name, address, and age) with Robin
- b. Sharing personal information with Robin can lead to unexpected problems
- c. It is safe to share personal information with Robin (R)
- d. Personal information that is collected by Robin can be made available for others without me knowing
- e. Personal information that is collected by Robin can be misused

CFA

Model 1 (configural model): CFA with 3 correlated waves, with covarying residuals for the same items at T1, T2 and T3, but no equality constraints imposed

lavaan 0.6-3 ended normally after 69 iterations

Optimization method	NLMINB	
Number of free parameters	63	
Number of equality constraints	2	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	151.543	108.267
Degrees of freedom	74	74
P-value (Chi-square)	0.000	0.006
Scaling correction factor		1.400
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1667.031	1093.719
Degrees of freedom	105	105
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.950	0.965
Tucker-Lewis Index (TLI)	0.930	0.951
Robust Comparative Fit Index (CFI)		0.968
Robust Tucker-Lewis Index (TLI)		0.955

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-4030.865	-4030.865
Loglikelihood unrestricted model (H1)	-3955.093	-3955.093
Number of free parameters	61	61

Akaike (AIC)	8183.729	8183.729
Bayesian (BIC)	8378.160	8378.160
Sample-size adjusted Bayesian (BIC)	8184.977	8184.977

Root Mean Square Error of Approximation:

RMSEA	0.077	0.051
90 Percent Confidence Interval	0.059 0.094	0.032 0.068
P-value RMSEA <= 0.05	0.008	0.451
Robust RMSEA		0.060
90 Percent Confidence Interval		0.033 0.084

Standardized Root Mean Square Residual:

SRMR	0.055	0.055
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
risk_t1 =~						
risk_t1_1	1.000				1.124	0.711
risk_t1_2	0.775	0.139	5.557	0.000	0.871	0.612
risk_t1_3_r	0.588	0.113	5.203	0.000	0.661	0.467
risk_t1_4	1.084	0.101	10.698	0.000	1.219	0.808
risk_t1_5	1.083	0.106	10.255	0.000	1.217	0.841
risk_t2 =~						
risk_t3_1	1.000				1.108	0.771
risk_t3_2	0.946	0.094	10.018	0.000	1.048	0.727
risk_t3_3_r	0.591	0.129	4.564	0.000	0.655	0.491
risk_t3_4	0.959	0.081	11.896	0.000	1.063	0.734
risk_t3_5	1.016	0.106	9.569	0.000	1.126	0.845
risk_t3 =~						
risk_t5_1	1.000				1.146	0.760
risk_t5_2	0.943	0.110	8.544	0.000	1.080	0.752
risk_t5_3_r	0.619	0.120	5.147	0.000	0.709	0.534
risk_t5_4	1.036	0.120	8.662	0.000	1.188	0.806
risk_t5_5	1.145	0.095	12.036	0.000	1.312	0.925

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.risk_t1_1 ~~						
.risk_t3_1	0.073	0.107	0.682	0.495	0.073	0.071
.risk_t5_1	0.203	0.105	1.944	0.052	0.203	0.186
.risk_t3_1 ~~						
.risk_t5_1	0.180	0.130	1.387	0.165	0.180	0.200
.risk_t1_2 ~~						
.risk_t3_2	0.032	0.082	0.382	0.702	0.032	0.028
.risk_t5_2	0.187	0.109	1.714	0.087	0.187	0.176

.risk_t3_2	~~						
.risk_t5_2		-0.020	0.097	-0.203	0.839	-0.020	-0.021
.risk_t1_3_r	~~						
.risk_t3_3_r		0.462	0.165	2.810	0.005	0.462	0.318
.risk_t5_3_r		0.523	0.164	3.180	0.001	0.523	0.372
.risk_t3_3_r	~~						
.risk_t5_3_r		0.506	0.160	3.166	0.002	0.506	0.388
.risk_t1_4	~~						
.risk_t3_4		0.169	0.100	1.692	0.091	0.169	0.193
.risk_t5_4		0.192	0.114	1.685	0.092	0.192	0.248
.risk_t3_4	~~						
.risk_t5_4		0.256	0.129	1.985	0.047	0.256	0.298
.risk_t1_5	~~						
.risk_t3_5		-0.019	0.059	-0.319	0.750	-0.019	-0.034
.risk_t5_5		-0.001	0.073	-0.011	0.991	-0.001	-0.002
.risk_t3_5	~~						
.risk_t5_5		0.016	0.057	0.289	0.773	0.016	0.043
risk_t1	~~						
risk_t2		1.011	0.177	5.709	0.000	0.812	0.812
risk_t3		0.912	0.185	4.924	0.000	0.708	0.708
risk_t2	~~						
risk_t3		1.052	0.189	5.558	0.000	0.828	0.828

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.rsk_t1_1 (it1)	4.564	0.092	49.525	0.000	4.564	2.886
.rsk_t1_2	4.120	0.106	38.951	0.000	4.120	2.896
.rsk_1_3_	4.239	0.108	39.343	0.000	4.239	2.995
.rsk_t1_4	4.756	0.110	43.303	0.000	4.756	3.154
.rsk_t1_5	4.505	0.107	41.999	0.000	4.505	3.113
.rsk_t3_1 (it1)	4.564	0.092	49.525	0.000	4.564	3.174
.rsk_t3_2	4.179	0.107	39.063	0.000	4.179	2.898
.rsk_3_3_	4.340	0.102	42.384	0.000	4.340	3.253
.rsk_t3_4	4.850	0.108	45.090	0.000	4.850	3.348
.rsk_t3_5	4.760	0.098	48.626	0.000	4.760	3.573
.rsk_t5_1 (it1)	4.564	0.092	49.525	0.000	4.564	3.025
.rsk_t5_2	4.312	0.106	40.667	0.000	4.312	3.002
.rsk_5_3_	4.478	0.102	43.980	0.000	4.478	3.372
.rsk_t5_4	4.842	0.109	44.478	0.000	4.842	3.286
.rsk_t5_5	4.779	0.104	45.997	0.000	4.779	3.370
risk_t1	0.000				0.000	0.000
risk_t2	0.000				0.000	0.000
risk_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.risk_t1_1	1.238	0.211	5.874	0.000	1.238	0.495
.risk_t1_2	1.265	0.248	5.108	0.000	1.265	0.625
.risk_t1_3_r	1.566	0.192	8.150	0.000	1.566	0.782
.risk_t1_4	0.789	0.144	5.480	0.000	0.789	0.347
.risk_t1_5	0.613	0.120	5.124	0.000	0.613	0.292
.risk_t3_1	0.840	0.123	6.831	0.000	0.840	0.406
.risk_t3_2	0.981	0.131	7.465	0.000	0.981	0.472
.risk_t3_3_r	1.352	0.202	6.695	0.000	1.352	0.759

.risk_t3_4	0.969	0.185	5.227	0.000	0.969	0.462
.risk_t3_5	0.506	0.119	4.242	0.000	0.506	0.285
.risk_t5_1	0.963	0.216	4.462	0.000	0.963	0.423
.risk_t5_2	0.896	0.205	4.378	0.000	0.896	0.434
.risk_t5_3_r	1.260	0.205	6.154	0.000	1.260	0.715
.risk_t5_4	0.761	0.221	3.445	0.001	0.761	0.351
.risk_t5_5	0.289	0.074	3.914	0.000	0.289	0.144
risk_t1	1.263	0.246	5.146	0.000	1.000	1.000
risk_t2	1.229	0.214	5.743	0.000	1.000	1.000
risk_t3	1.313	0.252	5.222	0.000	1.000	1.000

	risk_t1	risk_t2	risk_t3	total
alpha	0.8226224	0.8356652	0.8702115	0.9281759
omega	0.8257802	0.8432240	0.8763143	0.9122835
omega2	0.8257802	0.8432240	0.8763143	0.9122835
omega3	0.8061315	0.8420768	0.8652979	0.8825269
avevar	0.4979703	0.5257712	0.5945922	0.5388398

Model 2 (weak invariance): CFA with constrained factor loadings and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 62 iterations

Optimization method	NLMINB	
Number of free parameters	63	
Number of equality constraints	10	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	158.122	113.966
Degrees of freedom	82	82
P-value (Chi-square)	0.000	0.011
Scaling correction factor		1.387
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1667.031	1093.719
Degrees of freedom	105	105
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.951	0.968
Tucker-Lewis Index (TLI)	0.938	0.959
Robust Comparative Fit Index (CFI)		0.971
Robust Tucker-Lewis Index (TLI)		0.962

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-4034.154	-4034.154
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Loglikelihood unrestricted model (H1)	-3955.093	-3955.093
Number of free parameters	53	53
Akaike (AIC)	8174.308	8174.308
Bayesian (BIC)	8343.240	8343.240
Sample-size adjusted Bayesian (BIC)	8175.392	8175.392

Root Mean Square Error of Approximation:

RMSEA	0.072	0.047
90 Percent Confidence Interval	0.055 0.089	0.027 0.063
P-value RMSEA <= 0.05	0.019	0.610
Robust RMSEA		0.055
90 Percent Confidence Interval		0.027 0.078

Standardized Root Mean Square Residual:

SRMR	0.063	0.063
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
risk_t1 =~						
risk_t1_1	1.000				1.116	0.706
risk_t1_2 (a1)	0.904	0.072	12.597	0.000	1.009	0.671
rsk_t1_3_ (a2)	0.599	0.099	6.030	0.000	0.669	0.471
risk_t1_4 (a3)	1.029	0.067	15.349	0.000	1.148	0.784
risk_t1_5 (a4)	1.093	0.068	16.055	0.000	1.220	0.846
risk_t2 =~						
risk_t3_1	1.000				1.069	0.756
risk_t3_2 (a1)	0.904	0.072	12.597	0.000	0.966	0.694
rsk_t3_3_ (a2)	0.599	0.099	6.030	0.000	0.640	0.482
risk_t3_4 (a3)	1.029	0.067	15.349	0.000	1.099	0.746
risk_t3_5 (a4)	1.093	0.068	16.055	0.000	1.168	0.857
risk_t3 =~						
risk_t5_1	1.000				1.183	0.770
risk_t5_2 (a1)	0.904	0.072	12.597	0.000	1.070	0.749
rsk_t5_3_ (a2)	0.599	0.099	6.030	0.000	0.709	0.534
risk_t5_4 (a3)	1.029	0.067	15.349	0.000	1.217	0.814
risk_t5_5 (a4)	1.093	0.068	16.055	0.000	1.292	0.922

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.risk_t1_1 ~~						
.risk_t3_1	0.084	0.108	0.773	0.439	0.084	0.081
.risk_t5_1	0.206	0.105	1.955	0.051	0.206	0.188
.risk_t3_1 ~~						
.risk_t5_1	0.184	0.130	1.418	0.156	0.184	0.203

.risk_t1_2	~~						
.risk_t3_2		0.021	0.082	0.260	0.795	0.021	0.019
.risk_t5_2		0.178	0.109	1.627	0.104	0.178	0.169
.risk_t3_2	~~						
.risk_t5_2		-0.011	0.097	-0.114	0.909	-0.011	-0.012
.risk_t1_3_r	~~						
.risk_t3_3_r		0.464	0.165	2.818	0.005	0.464	0.318
.risk_t5_3_r		0.521	0.165	3.158	0.002	0.521	0.371
.risk_t3_3_r	~~						
.risk_t5_3_r		0.509	0.159	3.195	0.001	0.509	0.389
.risk_t1_4	~~						
.risk_t3_4		0.166	0.098	1.698	0.089	0.166	0.186
.risk_t5_4		0.187	0.114	1.637	0.102	0.187	0.236
.risk_t3_4	~~						
.risk_t5_4		0.254	0.131	1.941	0.052	0.254	0.299
.risk_t1_5	~~						
.risk_t3_5		-0.023	0.058	-0.390	0.697	-0.023	-0.042
.risk_t5_5		-0.006	0.069	-0.089	0.929	-0.006	-0.015
.risk_t3_5	~~						
.risk_t5_5		0.009	0.057	0.157	0.875	0.009	0.023
risk_t1	~~						
risk_t2		0.969	0.170	5.716	0.000	0.812	0.812
risk_t3		0.939	0.176	5.332	0.000	0.711	0.711
risk_t2	~~						
risk_t3		1.050	0.188	5.583	0.000	0.831	0.831

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.rsk_t1_1 (it1)	4.565	0.092	49.522	0.000	4.565	2.888
.rsk_t1_2	4.122	0.106	39.026	0.000	4.122	2.742
.rsk_1_3_	4.240	0.108	39.196	0.000	4.240	2.986
.rsk_t1_4	4.756	0.110	43.226	0.000	4.756	3.246
.rsk_t1_5	4.506	0.107	42.065	0.000	4.506	3.123
.rsk_t3_1 (it1)	4.565	0.092	49.522	0.000	4.565	3.227
.rsk_t3_2	4.181	0.107	39.062	0.000	4.181	3.001
.rsk_3_3_	4.341	0.102	42.435	0.000	4.341	3.265
.rsk_t3_4	4.850	0.108	45.082	0.000	4.850	3.293
.rsk_t3_5	4.760	0.098	48.374	0.000	4.760	3.493
.rsk_t5_1 (it1)	4.565	0.092	49.522	0.000	4.565	2.971
.rsk_t5_2	4.313	0.106	40.717	0.000	4.313	3.019
.rsk_5_3_	4.479	0.102	43.864	0.000	4.479	3.374
.rsk_t5_4	4.842	0.109	44.419	0.000	4.842	3.238
.rsk_t5_5	4.780	0.104	46.002	0.000	4.780	3.409
risk_t1	0.000				0.000	0.000
risk_t2	0.000				0.000	0.000
risk_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.risk_t1_1	1.252	0.199	6.301	0.000	1.252	0.501
.risk_t1_2	1.242	0.261	4.762	0.000	1.242	0.549
.risk_t1_3_r	1.570	0.192	8.172	0.000	1.570	0.778
.risk_t1_4	0.828	0.143	5.784	0.000	0.828	0.386
.risk_t1_5	0.593	0.107	5.553	0.000	0.593	0.285

.risk_t3_1	0.858	0.116	7.415	0.000	0.858	0.429
.risk_t3_2	1.007	0.126	7.969	0.000	1.007	0.519
.risk_t3_3_r	1.358	0.195	6.964	0.000	1.358	0.768
.risk_t3_4	0.961	0.185	5.192	0.000	0.961	0.443
.risk_t3_5	0.493	0.115	4.308	0.000	0.493	0.266
.risk_t5_1	0.961	0.216	4.440	0.000	0.961	0.407
.risk_t5_2	0.897	0.196	4.587	0.000	0.897	0.440
.risk_t5_3_r	1.260	0.203	6.204	0.000	1.260	0.715
.risk_t5_4	0.756	0.218	3.470	0.001	0.756	0.338
.risk_t5_5	0.296	0.070	4.207	0.000	0.296	0.150
risk_t1	1.246	0.194	6.427	0.000	1.000	1.000
risk_t2	1.142	0.188	6.060	0.000	1.000	1.000
risk_t3	1.399	0.230	6.086	0.000	1.000	1.000

	risk_t1	risk_t2	risk_t3	total
alpha	0.8226224	0.8356652	0.8702115	0.9281759
omega	0.8293322	0.8392823	0.8777057	0.9128216
omega2	0.8293322	0.8392823	0.8777057	0.9128216
omega3	0.8285540	0.8227680	0.8764661	0.8889205
avevar	0.5015491	0.5195381	0.5977684	0.5392456

Model 3 (strong invariance): CFA with constrained factor loadings, intercepts, and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 54 iterations

Optimization method	NLMINB	
Number of free parameters	63	
Number of equality constraints	18	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	172.705	128.897
Degrees of freedom	90	90
P-value (Chi-square)	0.000	0.005
Scaling correction factor		1.340
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1667.031	1093.719
Degrees of freedom	105	105
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.947	0.961
Tucker-Lewis Index (TLI)	0.938	0.954
Robust Comparative Fit Index (CFI)		0.965
Robust Tucker-Lewis Index (TLI)		0.960

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-4041.446	-4041.446
Loglikelihood unrestricted model (H1)	-3955.093	-3955.093
Number of free parameters	45	45
Akaike (AIC)	8172.891	8172.891
Bayesian (BIC)	8316.324	8316.324
Sample-size adjusted Bayesian (BIC)	8173.811	8173.811

Root Mean Square Error of Approximation:

RMSEA	0.072	0.049
90 Percent Confidence Interval	0.055 0.088	0.031 0.065
P-value RMSEA <= 0.05	0.016	0.519
Robust RMSEA		0.057
90 Percent Confidence Interval		0.033 0.078

Standardized Root Mean Square Residual:

SRMR	0.066	0.066
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
risk_t1 =~						
risk_t1_1	1.000				1.119	0.708
risk_t1_2 (a1)	0.907	0.072	12.625	0.000	1.015	0.673
rsk_t1_3_ (a2)	0.607	0.099	6.134	0.000	0.679	0.476
risk_t1_4 (a3)	1.029	0.067	15.423	0.000	1.152	0.785
risk_t1_5 (a4)	1.097	0.068	16.086	0.000	1.228	0.844
risk_t2 =~						
risk_t3_1	1.000				1.066	0.755
risk_t3_2 (a1)	0.907	0.072	12.625	0.000	0.967	0.694
rsk_t3_3_ (a2)	0.607	0.099	6.134	0.000	0.647	0.486
risk_t3_4 (a3)	1.029	0.067	15.423	0.000	1.098	0.746
risk_t3_5 (a4)	1.097	0.068	16.086	0.000	1.170	0.856
risk_t3 =~						
risk_t5_1	1.000				1.182	0.770
risk_t5_2 (a1)	0.907	0.072	12.625	0.000	1.073	0.749
rsk_t5_3_ (a2)	0.607	0.099	6.134	0.000	0.718	0.538
risk_t5_4 (a3)	1.029	0.067	15.423	0.000	1.217	0.814
risk_t5_5 (a4)	1.097	0.068	16.086	0.000	1.297	0.922

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.risk_t1_1 ~~						
.risk_t3_1	0.089	0.109	0.822	0.411	0.089	0.086

.risk_t5_1	0.210	0.105	1.993	0.046	0.210	0.191
.risk_t3_1 ~~						
.risk_t5_1	0.182	0.130	1.399	0.162	0.182	0.200
.risk_t1_2 ~~						
.risk_t3_2	0.023	0.082	0.283	0.777	0.023	0.021
.risk_t5_2	0.177	0.110	1.608	0.108	0.177	0.167
.risk_t3_2 ~~						
.risk_t5_2	-0.014	0.097	-0.141	0.888	-0.014	-0.014
.risk_t1_3_r ~~						
.risk_t3_3_r	0.464	0.165	2.808	0.005	0.464	0.318
.risk_t5_3_r	0.512	0.166	3.089	0.002	0.512	0.363
.risk_t3_3_r ~~						
.risk_t5_3_r	0.505	0.160	3.151	0.002	0.505	0.385
.risk_t1_4 ~~						
.risk_t3_4	0.169	0.098	1.726	0.084	0.169	0.189
.risk_t5_4	0.189	0.114	1.659	0.097	0.189	0.239
.risk_t3_4 ~~						
.risk_t5_4	0.253	0.131	1.936	0.053	0.253	0.297
.risk_t1_5 ~~						
.risk_t3_5	-0.033	0.059	-0.565	0.572	-0.033	-0.060
.risk_t5_5	-0.011	0.069	-0.163	0.871	-0.011	-0.027
.risk_t3_5 ~~						
.risk_t5_5	0.011	0.057	0.191	0.849	0.011	0.029
risk_t1 ~~						
risk_t2	0.959	0.169	5.685	0.000	0.804	0.804
risk_t3	0.922	0.175	5.280	0.000	0.697	0.697
risk_t2 ~~						
risk_t3	1.048	0.188	5.587	0.000	0.831	0.831

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.rsk_t1_1 (it1)	4.552	0.092	49.728	0.000	4.552	2.880
.rsk_t1_2 (it2)	4.201	0.084	49.935	0.000	4.201	2.787
.rsk_1_3_ (it3)	4.355	0.086	50.658	0.000	4.355	3.054
.rsk_t1_4 (it4)	4.805	0.092	52.055	0.000	4.805	3.276
.rsk_t1_5 (it5)	4.683	0.089	52.877	0.000	4.683	3.219
.rsk_t3_1 (it1)	4.552	0.092	49.728	0.000	4.552	3.222
.rsk_t3_2 (it2)	4.201	0.084	49.935	0.000	4.201	3.013
.rsk_3_3_ (it3)	4.355	0.086	50.658	0.000	4.355	3.268
.rsk_t3_4 (it4)	4.805	0.092	52.055	0.000	4.805	3.265
.rsk_t3_5 (it5)	4.683	0.089	52.877	0.000	4.683	3.428
.rsk_t5_1 (it1)	4.552	0.092	49.728	0.000	4.552	2.962
.rsk_t5_2 (it2)	4.201	0.084	49.935	0.000	4.201	2.932
.rsk_5_3_ (it3)	4.355	0.086	50.658	0.000	4.355	3.262
.rsk_t5_4 (it4)	4.805	0.092	52.055	0.000	4.805	3.212
.rsk_t5_5 (it5)	4.683	0.089	52.877	0.000	4.683	3.329
risk_t1	0.000				0.000	0.000
risk_t2	0.000				0.000	0.000
risk_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.risk_t1_1	1.246	0.199	6.253	0.000	1.246	0.499
.risk_t1_2	1.242	0.262	4.746	0.000	1.242	0.547

.risk_t1_3_r	1.572	0.193	8.144	0.000	1.572	0.773
.risk_t1_4	0.825	0.143	5.776	0.000	0.825	0.383
.risk_t1_5	0.609	0.107	5.692	0.000	0.609	0.288
.risk_t3_1	0.858	0.115	7.439	0.000	0.858	0.430
.risk_t3_2	1.009	0.127	7.973	0.000	1.009	0.519
.risk_t3_3_r	1.357	0.196	6.914	0.000	1.357	0.764
.risk_t3_4	0.962	0.185	5.198	0.000	0.962	0.444
.risk_t3_5	0.497	0.115	4.331	0.000	0.497	0.267
.risk_t5_1	0.963	0.216	4.462	0.000	0.963	0.408
.risk_t5_2	0.902	0.196	4.590	0.000	0.902	0.439
.risk_t5_3_r	1.267	0.205	6.196	0.000	1.267	0.711
.risk_t5_4	0.757	0.217	3.485	0.000	0.757	0.338
.risk_t5_5	0.295	0.070	4.217	0.000	0.295	0.149
risk_t1	1.252	0.194	6.461	0.000	1.000	1.000
risk_t2	1.137	0.188	6.051	0.000	1.000	1.000
risk_t3	1.398	0.230	6.090	0.000	1.000	1.000

	risk_t1	risk_t2	risk_t3	total
alpha	0.8226224	0.8356652	0.8702115	0.9281759
omega	0.8306958	0.8394311	0.8779999	0.9129351
omega2	0.8306958	0.8394311	0.8779999	0.9129351
omega3	0.8380253	0.8246863	0.8818594	0.8897966
avevar	0.5036947	0.5195435	0.5981678	0.5401386

Compare the three models

	model1	model2	model3
npar	61.000	53.000	45.000
fmin	0.423	0.442	0.482
chisq	151.543	158.122	172.705
df	74.000	82.000	90.000
pvalue	0.000	0.000	0.000
chisq.scaled	108.267	113.966	128.897
df.scaled	74.000	82.000	90.000
pvalue.scaled	0.006	0.011	0.005
chisq.scaling.factor	1.400	1.387	1.340
baseline.chisq	1667.031	1667.031	1667.031
baseline.df	105.000	105.000	105.000
baseline.pvalue	0.000	0.000	0.000
baseline.chisq.scaled	1093.719	1093.719	1093.719
baseline.df.scaled	105.000	105.000	105.000
baseline.pvalue.scaled	0.000	0.000	0.000
baseline.chisq.scaling.factor	1.524	1.524	1.524
cfi	0.950	0.951	0.947
tli	0.930	0.938	0.938
nnfi	0.930	0.938	0.938
rfi	0.871	0.879	0.879
nfi	0.909	0.905	0.896
pnfi	0.641	0.707	0.768
ifi	0.951	0.952	0.948
rni	0.950	0.951	0.947
cfi.scaled	0.965	0.968	0.961
tli.scaled	0.951	0.959	0.954

cfi.robust	0.968	0.971	0.965
tli.robust	0.955	0.962	0.960
nnfi.scaled	0.951	0.959	0.954
nnfi.robust	0.955	0.962	0.960
rfi.scaled	0.860	0.867	0.863
nfi.scaled	0.901	0.896	0.882
ifi.scaled	0.966	0.968	0.961
rni.scaled	0.965	0.968	0.961
rni.robust	0.968	0.971	0.965
logl	-4030.865	-4034.154	-4041.446
unrestricted.logl	-3955.093	-3955.093	-3955.093
aic	8183.729	8174.308	8172.891
bic	8378.160	8343.240	8316.324
ntotal	179.000	179.000	179.000
bic2	8184.977	8175.392	8173.811
rmsea	0.077	0.072	0.072
rmsea.ci.lower	0.059	0.055	0.055
rmsea.ci.upper	0.094	0.089	0.088
rmsea.pvalue	0.008	0.019	0.016
rmsea.scaled	0.051	0.047	0.049
rmsea.ci.lower.scaled	0.032	0.027	0.031
rmsea.ci.upper.scaled	0.068	0.063	0.065
rmsea.pvalue.scaled	0.451	0.610	0.519
rmsea.robust	0.060	0.055	0.057
rmsea.ci.lower.robust	0.033	0.027	0.033
rmsea.ci.upper.robust	0.084	0.078	0.078
rmsea.pvalue.robust	NA	NA	NA
rmr	0.112	0.129	0.132
rmr_nomean	0.118	0.137	0.135
srmr	0.055	0.063	0.066
srmr_bentler	0.055	0.063	0.066
srmr_bentler_nomean	0.058	0.067	0.066
crmr	0.057	0.063	0.068
crmr_nomean	0.059	0.063	0.063
srmr_mplus	0.054	0.062	0.065
srmr_mplus_nomean	0.056	0.061	0.061
cn_05	113.308	118.889	118.269
cn_01	125.262	130.839	129.640
gfi	0.973	0.972	0.969
agfi	0.951	0.953	0.954
pgfi	0.533	0.590	0.646
mfi	0.805	0.808	0.794
ecvi	1.528	1.476	1.468

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell1fit	74	8183.7	8378.2	151.54			
model2fit	82	8174.3	8343.2	158.12	5.1639	8	0.7399

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell1fit	74	8183.7	8378.2	151.54			

```
model3fit 90 8172.9 8316.3 172.71    19.906    16    0.2245
```

```
Scaled Chi Square Difference Test (method = "satorra.bentler.2001")
```

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model2fit	82	8174.3	8343.2	158.12			
model3fit	90	8172.9	8316.3	172.71	17.113	8	0.02896 *

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Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
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Information Perceptions

Personal Relevance

English items

Please state for each statement the extent to which you agree or disagree:

- a. The advice Robin provided was relevant for me
- b. The advice Robin provided was applicable to me
- c. I found the advice provided by Robin valuable
- d. I found the advice provided by Robin useful

CFA

Model 1 (configural model): CFA with 3 correlated waves, with covarying residuals for the same items at T1, T2 and T3, but no equality constraints imposed

lavaan 0.6-3 ended normally after 75 iterations

Optimization method	NLMINB	
Number of free parameters	51	
Number of equality constraints	2	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	116.380	73.496
Degrees of freedom	41	41
P-value (Chi-square)	0.000	0.001
Scaling correction factor for the Satorra-Bentler correction		1.583

Model test baseline model:

Minimum Function Test Statistic	2264.717	1681.073
Degrees of freedom	66	66
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.966	0.980
Tucker-Lewis Index (TLI)	0.945	0.968
Robust Comparative Fit Index (CFI)		0.976
Robust Tucker-Lewis Index (TLI)		0.962

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2851.777	-2851.777
Loglikelihood unrestricted model (H1)	-2793.588	-2793.588

Number of free parameters	49	49
Akaike (AIC)	5801.555	5801.555
Bayesian (BIC)	5957.737	5957.737
Sample-size adjusted Bayesian (BIC)	5802.557	5802.557

Root Mean Square Error of Approximation:

RMSEA	0.101	0.067
90 Percent Confidence Interval	0.080 0.123	0.047 0.086
P-value RMSEA <= 0.05	0.000	0.083
Robust RMSEA		0.084
90 Percent Confidence Interval		0.052 0.114

Standardized Root Mean Square Residual:

SRMR	0.045	0.045
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
relevance_t1 =~						
relevance_t1_1	1.000				1.231	0.804
relevance_t1_2	0.929	0.076	12.169	0.000	1.143	0.806
relevance_t1_3	0.932	0.072	12.988	0.000	1.147	0.877
relevance_t1_4	1.086	0.068	15.920	0.000	1.336	0.931
relevance_t2 =~						
relevance_t3_1	1.000				1.366	0.845
relevance_t3_2	1.055	0.054	19.421	0.000	1.441	0.884
relevance_t3_3	0.957	0.053	18.076	0.000	1.307	0.908
relevance_t3_4	1.054	0.052	20.079	0.000	1.439	0.942
relevance_t3 =~						
relevance_t5_1	1.000				1.381	0.872
relevance_t5_2	0.959	0.040	24.173	0.000	1.324	0.864
relevance_t5_3	0.992	0.055	18.182	0.000	1.370	0.921
relevance_t5_4	1.076	0.048	22.222	0.000	1.486	0.958

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.relevance_t1_1 ~~						
.relevance_t3_1	0.223	0.075	2.972	0.003	0.223	0.283
.relevance_t5_1	0.091	0.069	1.321	0.187	0.091	0.129
.relevance_t3_1 ~~						
.relevance_t5_1	0.184	0.089	2.054	0.040	0.184	0.275
.relevance_t1_2 ~~						
.relevance_t3_2	0.128	0.072	1.784	0.074	0.128	0.200
.relevance_t5_2	0.190	0.074	2.588	0.010	0.190	0.293
.relevance_t3_2 ~~						

.relevance_t5_2	0.214	0.093	2.306	0.021	0.214	0.363
.relevance_t1_3 ~~						
.relevance_t3_3	0.105	0.045	2.357	0.018	0.105	0.277
.relevance_t5_3	0.066	0.043	1.548	0.122	0.066	0.182
.relevance_t3_3 ~~						
.relevance_t5_3	0.019	0.053	0.351	0.726	0.019	0.053
.relevance_t1_4 ~~						
.relevance_t3_4	-0.016	0.045	-0.352	0.725	-0.016	-0.058
.relevance_t5_4	-0.048	0.039	-1.243	0.214	-0.048	-0.206
.relevance_t3_4 ~~						
.relevance_t5_4	-0.014	0.047	-0.306	0.760	-0.014	-0.063
relevance_t1 ~~						
relevance_t2	0.919	0.179	5.123	0.000	0.547	0.547
relevance_t3	0.773	0.170	4.543	0.000	0.455	0.455
relevance_t2 ~~						
relevance_t3	1.354	0.191	7.084	0.000	0.718	0.718

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.rlvn_1_1 (it1)	4.019	0.098	41.025	0.000	4.019	2.625
.rlvn_1_2	4.275	0.100	42.681	0.000	4.275	3.013
.rlvn_1_3	4.370	0.093	47.141	0.000	4.370	3.341
.rlvn_1_4	4.345	0.101	43.017	0.000	4.345	3.026
.rlvn_3_1 (it1)	4.019	0.098	41.025	0.000	4.019	2.487
.rlvn_3_2	4.226	0.114	37.156	0.000	4.226	2.593
.rlvn_3_3	4.388	0.099	44.404	0.000	4.388	3.048
.rlvn_3_4	4.433	0.106	41.894	0.000	4.433	2.902
.rlvn_5_1 (it1)	4.019	0.098	41.025	0.000	4.019	2.539
.rlvn_5_2	4.159	0.104	39.833	0.000	4.159	2.713
.rlvn_5_3	4.391	0.103	42.506	0.000	4.391	2.952
.rlvn_5_4	4.372	0.106	41.122	0.000	4.372	2.819
rlvnc_t1	0.000				0.000	0.000
rlvnc_t2	0.000				0.000	0.000
rlvnc_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.relevance_t1_1	0.829	0.170	4.867	0.000	0.829	0.354
.relevance_t1_2	0.706	0.120	5.879	0.000	0.706	0.351
.relevance_t1_3	0.396	0.069	5.759	0.000	0.396	0.231
.relevance_t1_4	0.276	0.054	5.080	0.000	0.276	0.134
.relevance_t3_1	0.746	0.152	4.898	0.000	0.746	0.286
.relevance_t3_2	0.582	0.098	5.960	0.000	0.582	0.219
.relevance_t3_3	0.364	0.059	6.162	0.000	0.364	0.176
.relevance_t3_4	0.263	0.057	4.634	0.000	0.263	0.113
.relevance_t5_1	0.599	0.097	6.194	0.000	0.599	0.239
.relevance_t5_2	0.598	0.105	5.684	0.000	0.598	0.254
.relevance_t5_3	0.337	0.071	4.718	0.000	0.337	0.152
.relevance_t5_4	0.198	0.050	3.925	0.000	0.198	0.082
relevance_t1	1.514	0.225	6.744	0.000	1.000	1.000
relevance_t2	1.865	0.228	8.180	0.000	1.000	1.000
relevance_t3	1.907	0.226	8.419	0.000	1.000	1.000

relevance_t1 relevance_t2 relevance_t3 total

alpha	0.9147567	0.9431575	0.9473477	0.9397732
omega	0.9144133	0.9403548	0.9469518	0.9573794
omega2	0.9144133	0.9403548	0.9469518	0.9573794
omega3	0.9107615	0.9169140	0.9480546	0.9285804
avevar	0.7284234	0.7978902	0.8172108	0.7839007

Model 2 (weak invariance): CFA with constrained factor loadings and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 75 iterations

Optimization method	NLMINB	
Number of free parameters	51	
Number of equality constraints	8	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	122.782	81.916
Degrees of freedom	47	47
P-value (Chi-square)	0.000	0.001
Scaling correction factor		1.499
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	2264.717	1681.073
Degrees of freedom	66	66
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.966	0.978
Tucker-Lewis Index (TLI)	0.952	0.970
Robust Comparative Fit Index (CFI)		0.976
Robust Tucker-Lewis Index (TLI)		0.966

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2854.979	-2854.979
Loglikelihood unrestricted model (H1)	-2793.588	-2793.588
Number of free parameters	43	43
Akaike (AIC)	5795.957	5795.957
Bayesian (BIC)	5933.015	5933.015
Sample-size adjusted Bayesian (BIC)	5796.836	5796.836

Root Mean Square Error of Approximation:

RMSEA	0.095	0.064
90 Percent Confidence Interval	0.075 0.116	0.045 0.083
P-value RMSEA <= 0.05	0.000	0.106

Robust RMSEA 0.079
 90 Percent Confidence Interval 0.049 0.107

Standardized Root Mean Square Residual:

SRMR 0.051 0.051

Parameter Estimates:

Information Expected
 Information saturated (h1) model Structured
 Standard Errors Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
relevance_t1 =~						
rlvnc_1_1	1.000				1.215	0.801
rlvnc_1_2 (a1)	0.986	0.036	27.051	0.000	1.197	0.822
rlvnc_1_3 (a2)	0.965	0.039	24.561	0.000	1.172	0.882
rlvnc_1_4 (a3)	1.069	0.035	30.155	0.000	1.298	0.921
relevance_t2 =~						
rlvnc_3_1	1.000				1.375	0.845
rlvnc_3_2 (a1)	0.986	0.036	27.051	0.000	1.356	0.866
rlvnc_3_3 (a2)	0.965	0.039	24.561	0.000	1.327	0.912
rlvnc_3_4 (a3)	1.069	0.035	30.155	0.000	1.470	0.946
relevance_t3 =~						
rlvnc_5_1	1.000				1.386	0.875
rlvnc_5_2 (a1)	0.986	0.036	27.051	0.000	1.367	0.872
rlvnc_5_3 (a2)	0.965	0.039	24.561	0.000	1.338	0.915
rlvnc_5_4 (a3)	1.069	0.035	30.155	0.000	1.482	0.957

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.relevance_t1_1 ~~						
.relevance_t3_1	0.220	0.075	2.920	0.003	0.220	0.279
.relevance_t5_1	0.091	0.067	1.345	0.179	0.091	0.130
.relevance_t3_1 ~~						
.relevance_t5_1	0.184	0.089	2.065	0.039	0.184	0.275
.relevance_t1_2 ~~						
.relevance_t3_2	0.123	0.071	1.732	0.083	0.123	0.189
.relevance_t5_2	0.191	0.074	2.584	0.010	0.191	0.300
.relevance_t3_2 ~~						
.relevance_t5_2	0.213	0.092	2.304	0.021	0.213	0.354
.relevance_t1_3 ~~						
.relevance_t3_3	0.109	0.046	2.362	0.018	0.109	0.292
.relevance_t5_3	0.062	0.043	1.434	0.152	0.062	0.169
.relevance_t3_3 ~~						
.relevance_t5_3	0.019	0.054	0.343	0.732	0.019	0.053
.relevance_t1_4 ~~						
.relevance_t3_4	-0.015	0.045	-0.335	0.737	-0.015	-0.055
.relevance_t5_4	-0.048	0.039	-1.235	0.217	-0.048	-0.193
.relevance_t3_4 ~~						
.relevance_t5_4	-0.012	0.049	-0.255	0.799	-0.012	-0.055
relevance_t1 ~~						

relevance_t2	0.916	0.169	5.417	0.000	0.548	0.548
relevance_t3	0.771	0.162	4.751	0.000	0.458	0.458
relevance_t2 ~~						
relevance_t3	1.371	0.189	7.260	0.000	0.719	0.719

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.rlvn_1_1 (it1)	4.020	0.098	41.045	0.000	4.020	2.651
.rlvn_1_2	4.274	0.100	42.694	0.000	4.274	2.933
.rlvn_1_3	4.370	0.093	47.146	0.000	4.370	3.288
.rlvn_1_4	4.348	0.101	43.000	0.000	4.348	3.085
.rlvn_3_1 (it1)	4.020	0.098	41.045	0.000	4.020	2.471
.rlvn_3_2	4.228	0.114	37.149	0.000	4.228	2.701
.rlvn_3_3	4.390	0.099	44.435	0.000	4.390	3.016
.rlvn_3_4	4.435	0.106	41.890	0.000	4.435	2.854
.rlvn_5_1 (it1)	4.020	0.098	41.045	0.000	4.020	2.536
.rlvn_5_2	4.164	0.104	39.874	0.000	4.164	2.656
.rlvn_5_3	4.391	0.103	42.505	0.000	4.391	3.004
.rlvn_5_4	4.373	0.106	41.117	0.000	4.373	2.823
rlvnc_t1	0.000				0.000	0.000
rlvnc_t2	0.000				0.000	0.000
rlvnc_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.relevance_t1_1	0.824	0.162	5.082	0.000	0.824	0.358
.relevance_t1_2	0.689	0.120	5.752	0.000	0.689	0.325
.relevance_t1_3	0.393	0.066	5.944	0.000	0.393	0.222
.relevance_t1_4	0.301	0.058	5.173	0.000	0.301	0.151
.relevance_t3_1	0.755	0.151	5.005	0.000	0.755	0.285
.relevance_t3_2	0.612	0.094	6.482	0.000	0.612	0.250
.relevance_t3_3	0.357	0.058	6.144	0.000	0.357	0.168
.relevance_t3_4	0.253	0.056	4.486	0.000	0.253	0.105
.relevance_t5_1	0.591	0.094	6.317	0.000	0.591	0.235
.relevance_t5_2	0.590	0.106	5.570	0.000	0.590	0.240
.relevance_t5_3	0.346	0.066	5.202	0.000	0.346	0.162
.relevance_t5_4	0.203	0.049	4.108	0.000	0.203	0.085
relevance_t1	1.475	0.167	8.833	0.000	1.000	1.000
relevance_t2	1.891	0.208	9.115	0.000	1.000	1.000
relevance_t3	1.922	0.205	9.376	0.000	1.000	1.000

	relevance_t1	relevance_t2	relevance_t3	total
alpha	0.9147567	0.9431575	0.9473477	0.9397732
omega	0.9152704	0.9392502	0.9472549	0.9574718
omega2	0.9152704	0.9392502	0.9472549	0.9574718
omega3	0.9205480	0.9090502	0.9525008	0.9315101
avevar	0.7300679	0.7947061	0.8180677	0.7834885

Model 3 (strong invariance): CFA with constrained factor loadings, intercepts, and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 60 iterations

Optimization method	NLMINB		
Number of free parameters	51		
Number of equality constraints	14		
Number of observations	179		
Estimator	ML	Robust	
Model Fit Test Statistic	126.707	87.924	
Degrees of freedom	53	53	
P-value (Chi-square)	0.000	0.002	
Scaling correction factor for the Satorra-Bentler correction		1.441	

Model test baseline model:

Minimum Function Test Statistic	2264.717	1681.073
Degrees of freedom	66	66
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.966	0.978
Tucker-Lewis Index (TLI)	0.958	0.973
Robust Comparative Fit Index (CFI)		0.977
Robust Tucker-Lewis Index (TLI)		0.971

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2856.941	-2856.941
Loglikelihood unrestricted model (H1)	-2793.588	-2793.588
Number of free parameters	37	37
Akaike (AIC)	5787.882	5787.882
Bayesian (BIC)	5905.815	5905.815
Sample-size adjusted Bayesian (BIC)	5788.638	5788.638

Root Mean Square Error of Approximation:

RMSEA		0.088	0.061
90 Percent Confidence Interval	0.069	0.108	0.041 0.079
P-value RMSEA <= 0.05		0.001	0.169
Robust RMSEA			0.073
90 Percent Confidence Interval			0.044 0.099

Standardized Root Mean Square Residual:

SRMR	0.052	0.052
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured

Standard Errors

Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
relevance_t1 =~						
rlvnc_1_1	1.000				1.214	0.801
rlvnc_1_2 (a1)	0.988	0.036	27.179	0.000	1.200	0.822
rlvnc_1_3 (a2)	0.964	0.039	24.575	0.000	1.171	0.882
rlvnc_1_4 (a3)	1.069	0.035	30.179	0.000	1.297	0.921
relevance_t2 =~						
rlvnc_3_1	1.000				1.376	0.846
rlvnc_3_2 (a1)	0.988	0.036	27.179	0.000	1.360	0.867
rlvnc_3_3 (a2)	0.964	0.039	24.575	0.000	1.327	0.912
rlvnc_3_4 (a3)	1.069	0.035	30.179	0.000	1.470	0.946
relevance_t3 =~						
rlvnc_5_1	1.000				1.387	0.875
rlvnc_5_2 (a1)	0.988	0.036	27.179	0.000	1.371	0.872
rlvnc_5_3 (a2)	0.964	0.039	24.575	0.000	1.338	0.915
rlvnc_5_4 (a3)	1.069	0.035	30.179	0.000	1.483	0.957

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.relevance_t1_1 ~~						
.relevance_t3_1	0.219	0.075	2.901	0.004	0.219	0.278
.relevance_t5_1	0.091	0.067	1.350	0.177	0.091	0.130
.relevance_t3_1 ~~						
.relevance_t5_1	0.185	0.089	2.080	0.038	0.185	0.278
.relevance_t1_2 ~~						
.relevance_t3_2	0.121	0.071	1.714	0.087	0.121	0.186
.relevance_t5_2	0.188	0.074	2.534	0.011	0.188	0.293
.relevance_t3_2 ~~						
.relevance_t5_2	0.213	0.092	2.306	0.021	0.213	0.355
.relevance_t1_3 ~~						
.relevance_t3_3	0.110	0.046	2.368	0.018	0.110	0.292
.relevance_t5_3	0.062	0.043	1.432	0.152	0.062	0.168
.relevance_t3_3 ~~						
.relevance_t5_3	0.018	0.054	0.338	0.735	0.018	0.052
.relevance_t1_4 ~~						
.relevance_t3_4	-0.017	0.045	-0.369	0.712	-0.017	-0.060
.relevance_t5_4	-0.047	0.039	-1.225	0.220	-0.047	-0.191
.relevance_t3_4 ~~						
.relevance_t5_4	-0.012	0.049	-0.254	0.799	-0.012	-0.055
relevance_t1 ~~						
relevance_t2	0.918	0.169	5.433	0.000	0.550	0.550
relevance_t3	0.771	0.162	4.753	0.000	0.458	0.458
relevance_t2 ~~						
relevance_t3	1.368	0.189	7.249	0.000	0.717	0.717

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.rlvn_1_1 (it1)	4.019	0.096	41.908	0.000	4.019	2.651
.rlvn_1_2 (it2)	4.217	0.092	45.993	0.000	4.217	2.887
.rlvn_1_3 (it3)	4.381	0.084	52.105	0.000	4.381	3.299
.rlvn_1_4 (it4)	4.381	0.089	49.210	0.000	4.381	3.108

.rlvn_3_1 (it1)	4.019	0.096	41.908	0.000	4.019	2.471
.rlvn_3_2 (it2)	4.217	0.092	45.993	0.000	4.217	2.689
.rlvn_3_3 (it3)	4.381	0.084	52.105	0.000	4.381	3.011
.rlvn_3_4 (it4)	4.381	0.089	49.210	0.000	4.381	2.818
.rlvn_5_1 (it1)	4.019	0.096	41.908	0.000	4.019	2.534
.rlvn_5_2 (it2)	4.217	0.092	45.993	0.000	4.217	2.682
.rlvn_5_3 (it3)	4.381	0.084	52.105	0.000	4.381	2.998
.rlvn_5_4 (it4)	4.381	0.089	49.210	0.000	4.381	2.827
rlvnc_t1	0.000				0.000	0.000
rlvnc_t2	0.000				0.000	0.000
rlvnc_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.relevance_t1_1	0.824	0.162	5.087	0.000	0.824	0.358
.relevance_t1_2	0.693	0.120	5.777	0.000	0.693	0.325
.relevance_t1_3	0.393	0.066	5.954	0.000	0.393	0.223
.relevance_t1_4	0.303	0.058	5.211	0.000	0.303	0.153
.relevance_t3_1	0.753	0.151	4.991	0.000	0.753	0.285
.relevance_t3_2	0.610	0.095	6.458	0.000	0.610	0.248
.relevance_t3_3	0.357	0.058	6.160	0.000	0.357	0.169
.relevance_t3_4	0.255	0.056	4.527	0.000	0.255	0.106
.relevance_t5_1	0.590	0.094	6.297	0.000	0.590	0.234
.relevance_t5_2	0.592	0.106	5.581	0.000	0.592	0.240
.relevance_t5_3	0.346	0.066	5.217	0.000	0.346	0.162
.relevance_t5_4	0.203	0.049	4.107	0.000	0.203	0.085
relevance_t1	1.474	0.167	8.834	0.000	1.000	1.000
relevance_t2	1.893	0.207	9.122	0.000	1.000	1.000
relevance_t3	1.925	0.205	9.388	0.000	1.000	1.000

	relevance_t1	relevance_t2	relevance_t3	total
alpha	0.9147567	0.9431575	0.9473477	0.9397732
omega	0.9150674	0.9393641	0.9473073	0.9575339
omega2	0.9150674	0.9393641	0.9473073	0.9575339
omega3	0.9206291	0.9102766	0.9544878	0.9323222
avevar	0.7295479	0.7950283	0.8182205	0.7835134

Compare the three models

	model1	model2	model3
npar	49.000	43.000	37.000
fmin	0.325	0.343	0.354
chisq	116.380	122.782	126.707
df	41.000	47.000	53.000
pvalue	0.000	0.000	0.000
chisq.scaled	73.496	81.916	87.924
df.scaled	41.000	47.000	53.000
pvalue.scaled	0.001	0.001	0.002
chisq.scaling.factor	1.583	1.499	1.441
baseline.chisq	2264.717	2264.717	2264.717
baseline.df	66.000	66.000	66.000
baseline.pvalue	0.000	0.000	0.000
baseline.chisq.scaled	1681.073	1681.073	1681.073

baseline.df.scaled	66.000	66.000	66.000
baseline.pvalue.scaled	0.000	0.000	0.000
baseline.chisq.scaling.factor	1.347	1.347	1.347
cfi	0.966	0.966	0.966
tli	0.945	0.952	0.958
nnfi	0.945	0.952	0.958
rfi	0.917	0.924	0.930
nfi	0.949	0.946	0.944
pnfi	0.589	0.674	0.758
ifi	0.966	0.966	0.967
rni	0.966	0.966	0.966
cfi.scaled	0.980	0.978	0.978
tli.scaled	0.968	0.970	0.973
cfi.robust	0.976	0.976	0.977
tli.robust	0.962	0.966	0.971
nnfi.scaled	0.968	0.970	0.973
nnfi.robust	0.962	0.966	0.971
rfi.scaled	0.930	0.932	0.935
nfi.scaled	0.956	0.951	0.948
ifi.scaled	0.980	0.979	0.979
rni.scaled	0.980	0.978	0.978
rni.robust	0.976	0.976	0.977
logl	-2851.777	-2854.979	-2856.941
unrestricted.logl	-2793.588	-2793.588	-2793.588
aic	5801.555	5795.957	5787.882
bic	5957.737	5933.015	5905.815
ntotal	179.000	179.000	179.000
bic2	5802.557	5796.836	5788.638
rmsea	0.101	0.095	0.088
rmsea.ci.lower	0.080	0.075	0.069
rmsea.ci.upper	0.123	0.116	0.108
rmsea.pvalue	0.000	0.000	0.001
rmsea.scaled	0.067	0.064	0.061
rmsea.ci.lower.scaled	0.047	0.045	0.041
rmsea.ci.upper.scaled	0.086	0.083	0.079
rmsea.pvalue.scaled	0.083	0.106	0.169
rmsea.robust	0.084	0.079	0.073
rmsea.ci.lower.robust	0.052	0.049	0.044
rmsea.ci.upper.robust	0.114	0.107	0.099
rmsea.pvalue.robust	NA	NA	NA
rmr	0.104	0.117	0.118
rmr_nomean	0.107	0.122	0.122
srmr	0.045	0.051	0.052
srmr_bentler	0.045	0.051	0.052
srmr_bentler_nomean	0.044	0.051	0.051
crmr	0.046	0.052	0.053
crmr_nomean	0.045	0.046	0.046
srmr_mplus	0.044	0.051	0.052
srmr_mplus_nomean	0.042	0.045	0.045
cn_05	88.581	94.305	101.293
cn_01	100.898	106.613	113.796
gfi	0.972	0.970	0.969
agfi	0.939	0.943	0.948
pgfi	0.443	0.507	0.571

mfi	0.810	0.809	0.814
ecvi	1.198	1.166	1.121

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model1fit	41	5801.6	5957.7	116.38			
model2fit	47	5796.0	5933.0	122.78	6.9528	6	0.3252

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model1fit	41	5801.6	5957.7	116.38			
model3fit	53	5787.9	5905.8	126.71	10.818	12	0.5446

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model2fit	47	5796.0	5933.0	122.78			
model3fit	53	5787.9	5905.8	126.71	3.9706	6	0.6807

Credibility

English items

Please rate the extent to which the advice Robin provided is...

- a. ... believable
- b. ... accurate
- c. ... trustworthy
- d. ... biased (R)
- e. ... complete

CFA

Model 1 (configural model): CFA with 3 correlated waves, with covarying residuals for the same items at T1, T2 and T3, but no equality constraints imposed

lavaan 0.6-3 ended normally after 83 iterations

Optimization method	NLMINB	
Number of free parameters	63	
Number of equality constraints	2	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	151.142	114.341
Degrees of freedom	74	74
P-value (Chi-square)	0.000	0.002
Scaling correction factor		1.322
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	2096.709	1363.338
Degrees of freedom	105	105
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.961	0.968
Tucker-Lewis Index (TLI)	0.945	0.955
Robust Comparative Fit Index (CFI)		0.972
Robust Tucker-Lewis Index (TLI)		0.961

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-3551.565	-3551.565
Loglikelihood unrestricted model (H1)	-3475.994	-3475.994
Number of free parameters	61	61

Akaike (AIC)	7225.130	7225.130
Bayesian (BIC)	7419.560	7419.560
Sample-size adjusted Bayesian (BIC)	7226.377	7226.377

Root Mean Square Error of Approximation:

RMSEA	0.076	0.055
90 Percent Confidence Interval	0.059 0.094	0.037 0.072
P-value RMSEA <= 0.05	0.008	0.299
Robust RMSEA		0.063
90 Percent Confidence Interval		0.039 0.086

Standardized Root Mean Square Residual:

SRMR	0.054	0.054
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
credibility_t1 =~						
cred_t1_1	1.000				1.043	0.901
cred_t1_2	0.887	0.084	10.525	0.000	0.925	0.728
cred_t1_3	1.025	0.073	14.127	0.000	1.069	0.897
cred_t1_4_r	-0.293	0.102	-2.864	0.004	-0.306	-0.235
cred_t1_5	0.865	0.088	9.865	0.000	0.902	0.679
credibility_t2 =~						
cred_t3_1	1.000				1.107	0.887
cred_t3_2	0.979	0.079	12.350	0.000	1.084	0.807
cred_t3_3	0.938	0.067	13.949	0.000	1.039	0.867
cred_t3_4_r	-0.223	0.097	-2.291	0.022	-0.247	-0.184
cred_t3_5	1.076	0.071	15.053	0.000	1.192	0.861
credibility_t3 =~						
cred_t5_1	1.000				1.272	0.898
cred_t5_2	0.973	0.058	16.833	0.000	1.237	0.850
cred_t5_3	1.013	0.054	18.707	0.000	1.288	0.926
cred_t5_4_r	-0.364	0.079	-4.590	0.000	-0.463	-0.344
cred_t5_5	0.911	0.062	14.771	0.000	1.159	0.867

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.cred_t1_1 ~~						
.cred_t3_1	0.016	0.050	0.312	0.755	0.016	0.054
.cred_t5_1	0.035	0.038	0.916	0.360	0.035	0.113
.cred_t3_1 ~~						
.cred_t5_1	0.087	0.046	1.898	0.058	0.087	0.244
.cred_t1_2 ~~						
.cred_t3_2	0.088	0.070	1.256	0.209	0.088	0.127
.cred_t5_2	0.090	0.064	1.405	0.160	0.090	0.135

.cred_t3_2 ~						
.cred_t5_2	0.225	0.080	2.815	0.005	0.225	0.370
.cred_t1_3 ~						
.cred_t3_3	0.044	0.042	1.039	0.299	0.044	0.139
.cred_t5_3	-0.001	0.035	-0.034	0.973	-0.001	-0.004
.cred_t3_3 ~						
.cred_t5_3	0.007	0.039	0.185	0.853	0.007	0.023
.cred_t1_4_r ~						
.cred_t3_4_r	0.790	0.160	4.939	0.000	0.790	0.475
.cred_t5_4_r	0.757	0.145	5.226	0.000	0.757	0.473
.cred_t3_4_r ~						
.cred_t5_4_r	0.972	0.165	5.906	0.000	0.972	0.585
.cred_t1_5 ~						
.cred_t3_5	0.117	0.087	1.354	0.176	0.117	0.171
.cred_t5_5	0.129	0.067	1.935	0.053	0.129	0.200
.cred_t3_5 ~						
.cred_t5_5	0.119	0.063	1.896	0.058	0.119	0.255
credibility_t1 ~						
credibility_t2	0.704	0.143	4.923	0.000	0.609	0.609
credibility_t3	0.896	0.158	5.690	0.000	0.676	0.676
credibility_t2 ~						
credibility_t3	1.050	0.166	6.333	0.000	0.746	0.746

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.crd_t1_1 (it1)	4.699	0.078	60.317	0.000	4.699	4.058
.crd_t1_2	4.401	0.093	47.574	0.000	4.401	3.463
.crd_t1_3	4.610	0.086	53.689	0.000	4.610	3.867
.crd_1_4_	4.348	0.095	45.675	0.000	4.348	3.339
.crd_t1_5	4.167	0.096	43.334	0.000	4.167	3.139
.crd_t3_1 (it1)	4.699	0.078	60.317	0.000	4.699	3.765
.crd_t3_2	4.363	0.096	45.521	0.000	4.363	3.250
.crd_t3_3	4.724	0.083	57.047	0.000	4.724	3.941
.crd_3_4_	4.301	0.099	43.616	0.000	4.301	3.213
.crd_t3_5	4.195	0.098	42.624	0.000	4.195	3.031
.crd_t5_1 (it1)	4.699	0.078	60.317	0.000	4.699	3.320
.crd_t5_2	4.335	0.099	43.766	0.000	4.335	2.978
.crd_t5_3	4.636	0.089	52.109	0.000	4.636	3.335
.crd_5_4_	4.449	0.096	46.181	0.000	4.449	3.308
.crd_t5_5	4.198	0.091	46.081	0.000	4.198	3.142
crdbl_t1	0.000				0.000	0.000
crdbl_t2	0.000				0.000	0.000
crdbl_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.cred_t1_1	0.253	0.078	3.219	0.001	0.253	0.188
.cred_t1_2	0.760	0.105	7.268	0.000	0.760	0.470
.cred_t1_3	0.278	0.064	4.328	0.000	0.278	0.196
.cred_t1_4_r	1.602	0.161	9.954	0.000	1.602	0.945
.cred_t1_5	0.949	0.132	7.212	0.000	0.949	0.538
.cred_t3_1	0.332	0.067	4.954	0.000	0.332	0.213
.cred_t3_2	0.627	0.091	6.904	0.000	0.627	0.348
.cred_t3_3	0.357	0.086	4.154	0.000	0.357	0.248

.cred_t3_4_r	1.731	0.176	9.858	0.000	1.731	0.966
.cred_t3_5	0.495	0.096	5.148	0.000	0.495	0.259
.cred_t5_1	0.386	0.071	5.452	0.000	0.386	0.193
.cred_t5_2	0.588	0.096	6.093	0.000	0.588	0.278
.cred_t5_3	0.274	0.069	3.979	0.000	0.274	0.142
.cred_t5_4_r	1.595	0.157	10.135	0.000	1.595	0.881
.cred_t5_5	0.442	0.074	5.995	0.000	0.442	0.248
credibility_t1	1.088	0.196	5.566	0.000	1.000	1.000
credibility_t2	1.226	0.183	6.685	0.000	1.000	1.000
credibility_t3	1.617	0.218	7.410	0.000	1.000	1.000

	credibility_t1	credibility_t2	credibility_t3	total
alpha	0.6997825	0.7650598	0.7477169	0.8808607
omega	0.7746026	0.8311174	0.8599747	0.8713321
omega2	0.7746026	0.8311174	0.8599747	0.8713321
omega3	0.7486019	0.7981117	0.8534457	0.8246671
avevar	0.5097751	0.5834810	0.6594947	0.5894764

- Note that the configural model showed a negative factor loading of Item 4 “Biased”. For testing weak (Model 2) and strong (Model 3) invariance, we removed this item from the analyses. Also for subsequent analyses, this item was removed from the scale.

Model 2 (weak invariance): CFA with constrained factor loadings and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 63 iterations

Optimization method	NLMINB	
Number of free parameters	51	
Number of equality constraints	8	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	128.390	86.455
Degrees of freedom	47	47
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.485
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1907.620	1126.721
Degrees of freedom	66	66
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.956	0.963
Tucker-Lewis Index (TLI)	0.938	0.948
Robust Comparative Fit Index (CFI)		0.967
Robust Tucker-Lewis Index (TLI)		0.954

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2728.482	-2728.482
Loglikelihood unrestricted model (H1)	-2664.287	-2664.287
Number of free parameters	43	43
Akaike (AIC)	5542.964	5542.964
Bayesian (BIC)	5680.021	5680.021
Sample-size adjusted Bayesian (BIC)	5543.843	5543.843

Root Mean Square Error of Approximation:

RMSEA	0.098	0.068
90 Percent Confidence Interval	0.078 0.119	0.050 0.087
P-value RMSEA <= 0.05	0.000	0.054
Robust RMSEA		0.083
90 Percent Confidence Interval		0.055 0.111

Standardized Root Mean Square Residual:

SRMR	0.056	0.056
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
credibility_t1 =~						
cred_t1_1	1.000				1.034	0.896
cred_t1_2 (a1)	0.951	0.052	18.125	0.000	0.983	0.753
cred_t1_3 (a2)	0.995	0.042	23.614	0.000	1.029	0.884
cred_t1_5 (a4)	0.947	0.050	18.866	0.000	0.979	0.713
credibility_t2 =~						
cred_t3_1	1.000				1.122	0.894
cred_t3_2 (a1)	0.951	0.052	18.125	0.000	1.066	0.798
cred_t3_3 (a2)	0.995	0.042	23.614	0.000	1.116	0.889
cred_t3_5 (a4)	0.947	0.050	18.866	0.000	1.063	0.817
credibility_t3 =~						
cred_t5_1	1.000				1.271	0.898
cred_t5_2 (a1)	0.951	0.052	18.125	0.000	1.209	0.843
cred_t5_3 (a2)	0.995	0.042	23.614	0.000	1.266	0.924
cred_t5_5 (a4)	0.947	0.050	18.866	0.000	1.205	0.875

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.cred_t1_1 ~~						
.cred_t3_1	0.022	0.051	0.421	0.674	0.022	0.075
.cred_t5_1	0.040	0.040	0.995	0.320	0.040	0.125
.cred_t3_1 ~~						

.cred_t5_1	0.089	0.046	1.913	0.056	0.089	0.253
.cred_t1_2 ~~						
.cred_t3_2	0.090	0.071	1.268	0.205	0.090	0.130
.cred_t5_2	0.087	0.063	1.369	0.171	0.087	0.131
.cred_t3_2 ~~						
.cred_t5_2	0.229	0.081	2.822	0.005	0.229	0.369
.cred_t1_3 ~~						
.cred_t3_3	0.028	0.045	0.622	0.534	0.028	0.089
.cred_t5_3	0.003	0.035	0.079	0.937	0.003	0.010
.cred_t3_3 ~~						
.cred_t5_3	0.007	0.042	0.159	0.873	0.007	0.022
.cred_t1_5 ~~						
.cred_t3_5	0.106	0.090	1.180	0.238	0.106	0.147
.cred_t5_5	0.126	0.069	1.829	0.067	0.126	0.196
.cred_t3_5 ~~						
.cred_t5_5	0.122	0.067	1.808	0.071	0.122	0.245
credibility_t1 ~~						
credibility_t2	0.711	0.144	4.945	0.000	0.613	0.613
credibility_t3	0.897	0.155	5.797	0.000	0.682	0.682
credibility_t2 ~~						
credibility_t3	1.063	0.162	6.562	0.000	0.745	0.745

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.crd_t1_1 (it1)	4.700	0.078	60.328	0.000	4.700	4.072
.crd_t1_2	4.402	0.092	47.596	0.000	4.402	3.371
.crd_t1_3	4.614	0.086	53.735	0.000	4.614	3.963
.crd_t1_5	4.168	0.096	43.350	0.000	4.168	3.035
.crd_t3_1 (it1)	4.700	0.078	60.328	0.000	4.700	3.748
.crd_t3_2	4.363	0.096	45.490	0.000	4.363	3.264
.crd_t3_3	4.728	0.083	57.185	0.000	4.728	3.763
.crd_t3_5	4.190	0.098	42.566	0.000	4.190	3.223
.crd_t5_1 (it1)	4.700	0.078	60.328	0.000	4.700	3.318
.crd_t5_2	4.333	0.099	43.758	0.000	4.333	3.023
.crd_t5_3	4.635	0.089	52.017	0.000	4.635	3.382
.crd_t5_5	4.204	0.091	46.149	0.000	4.204	3.055
crdbl_t1	0.000				0.000	0.000
crdbl_t2	0.000				0.000	0.000
crdbl_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.cred_t1_1	0.264	0.071	3.716	0.000	0.264	0.198
.cred_t1_2	0.740	0.105	7.076	0.000	0.740	0.434
.cred_t1_3	0.297	0.056	5.327	0.000	0.297	0.219
.cred_t1_5	0.927	0.131	7.067	0.000	0.927	0.492
.cred_t3_1	0.314	0.064	4.909	0.000	0.314	0.200
.cred_t3_2	0.650	0.091	7.159	0.000	0.650	0.364
.cred_t3_3	0.332	0.080	4.142	0.000	0.332	0.211
.cred_t3_5	0.561	0.099	5.679	0.000	0.561	0.332
.cred_t5_1	0.390	0.072	5.448	0.000	0.390	0.194
.cred_t5_2	0.593	0.094	6.338	0.000	0.593	0.289
.cred_t5_3	0.276	0.065	4.250	0.000	0.276	0.147
.cred_t5_5	0.442	0.076	5.795	0.000	0.442	0.234

credibility_t1	1.069	0.176	6.057	0.000	1.000	1.000
credibility_t2	1.258	0.171	7.378	0.000	1.000	1.000
credibility_t3	1.617	0.204	7.942	0.000	1.000	1.000

	credibility_t1	credibility_t2	credibility_t3	total
alpha	0.8806165	0.9153443	0.9348019	0.9388137
omega	0.8791336	0.9112348	0.9350984	0.9482535
omega2	0.8791336	0.9112348	0.9350984	0.9482535
omega3	0.8988021	0.8886129	0.9447549	0.9523725
avevar	0.6453331	0.7197340	0.7828096	0.7210245

Model 3 (strong invariance): CFA with constrained factor loadings, intercepts, and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 54 iterations

Optimization method	NLMINB	
Number of free parameters	51	
Number of equality constraints	14	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	132.720	93.222
Degrees of freedom	53	53
P-value (Chi-square)	0.000	0.001
Scaling correction factor		1.424
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1907.620	1126.721
Degrees of freedom	66	66
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.957	0.962
Tucker-Lewis Index (TLI)	0.946	0.953
Robust Comparative Fit Index (CFI)		0.968
Robust Tucker-Lewis Index (TLI)		0.960

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2730.647	-2730.647
Loglikelihood unrestricted model (H1)	-2664.287	-2664.287
Number of free parameters	37	37
Akaike (AIC)	5535.294	5535.294
Bayesian (BIC)	5653.227	5653.227
Sample-size adjusted Bayesian (BIC)	5536.050	5536.050

Root Mean Square Error of Approximation:

RMSEA		0.092	0.065	
90 Percent Confidence Interval	0.072	0.111	0.046	0.083
P-value RMSEA <= 0.05		0.000	0.088	
Robust RMSEA			0.078	
90 Percent Confidence Interval			0.051	0.103

Standardized Root Mean Square Residual:

SRMR	0.056	0.056
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
credibility_t1 =~						
cred_t1_1	1.000				1.032	0.895
cred_t1_2 (a1)	0.952	0.053	18.127	0.000	0.983	0.752
cred_t1_3 (a2)	0.995	0.042	23.606	0.000	1.027	0.883
cred_t1_5 (a4)	0.946	0.050	18.893	0.000	0.977	0.712
credibility_t2 =~						
cred_t3_1	1.000				1.121	0.894
cred_t3_2 (a1)	0.952	0.053	18.127	0.000	1.068	0.798
cred_t3_3 (a2)	0.995	0.042	23.606	0.000	1.116	0.887
cred_t3_5 (a4)	0.946	0.050	18.893	0.000	1.061	0.817
credibility_t3 =~						
cred_t5_1	1.000				1.273	0.898
cred_t5_2 (a1)	0.952	0.053	18.127	0.000	1.212	0.844
cred_t5_3 (a2)	0.995	0.042	23.606	0.000	1.266	0.924
cred_t5_5 (a4)	0.946	0.050	18.893	0.000	1.204	0.875

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.cred_t1_1 ~~						
.cred_t3_1	0.019	0.051	0.380	0.704	0.019	0.067
.cred_t5_1	0.040	0.040	0.990	0.322	0.040	0.124
.cred_t3_1 ~~						
.cred_t5_1	0.090	0.046	1.952	0.051	0.090	0.259
.cred_t1_2 ~~						
.cred_t3_2	0.090	0.071	1.266	0.206	0.090	0.130
.cred_t5_2	0.085	0.063	1.337	0.181	0.085	0.128
.cred_t3_2 ~~						
.cred_t5_2	0.229	0.081	2.826	0.005	0.229	0.369
.cred_t1_3 ~~						
.cred_t3_3	0.024	0.045	0.546	0.585	0.024	0.077
.cred_t5_3	0.004	0.035	0.117	0.907	0.004	0.014
.cred_t3_3 ~~						
.cred_t5_3	0.005	0.041	0.131	0.896	0.005	0.018

.cred_t1_5	~~					
.cred_t3_5		0.107	0.090	1.197	0.231	0.107
.cred_t5_5		0.124	0.069	1.811	0.070	0.124
.cred_t3_5	~~					
.cred_t5_5		0.122	0.067	1.812	0.070	0.122
credibility_t1	~~					
credibility_t2		0.713	0.144	4.958	0.000	0.616
credibility_t3		0.898	0.155	5.808	0.000	0.683
credibility_t2	~~					
credibility_t3		1.060	0.162	6.548	0.000	0.743

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.crd_t1_1 (it1)	4.702	0.078	60.422	0.000	4.702	4.074
.crd_t1_2 (it2)	4.367	0.080	54.825	0.000	4.367	3.341
.crd_t1_3 (it3)	4.657	0.076	61.213	0.000	4.657	4.002
.crd_t1_5 (it5)	4.192	0.080	52.315	0.000	4.192	3.057
.crd_t3_1 (it1)	4.702	0.078	60.422	0.000	4.702	3.750
.crd_t3_2 (it2)	4.367	0.080	54.825	0.000	4.367	3.264
.crd_t3_3 (it3)	4.657	0.076	61.213	0.000	4.657	3.701
.crd_t3_5 (it5)	4.192	0.080	52.315	0.000	4.192	3.228
.crd_t5_1 (it1)	4.702	0.078	60.422	0.000	4.702	3.318
.crd_t5_2 (it2)	4.367	0.080	54.825	0.000	4.367	3.041
.crd_t5_3 (it3)	4.657	0.076	61.213	0.000	4.657	3.397
.crd_t5_5 (it5)	4.192	0.080	52.315	0.000	4.192	3.047
crdbl_t1	0.000				0.000	0.000
crdbl_t2	0.000				0.000	0.000
crdbl_t3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.cred_t1_1	0.266	0.071	3.753	0.000	0.266	0.200
.cred_t1_2	0.741	0.105	7.087	0.000	0.741	0.434
.cred_t1_3	0.299	0.056	5.370	0.000	0.299	0.220
.cred_t1_5	0.926	0.131	7.071	0.000	0.926	0.493
.cred_t3_1	0.315	0.064	4.913	0.000	0.315	0.200
.cred_t3_2	0.650	0.091	7.149	0.000	0.650	0.363
.cred_t3_3	0.338	0.080	4.210	0.000	0.338	0.213
.cred_t3_5	0.561	0.099	5.691	0.000	0.561	0.333
.cred_t5_1	0.388	0.072	5.426	0.000	0.388	0.193
.cred_t5_2	0.594	0.094	6.338	0.000	0.594	0.288
.cred_t5_3	0.276	0.065	4.251	0.000	0.276	0.147
.cred_t5_5	0.443	0.076	5.814	0.000	0.443	0.234
credibility_t1	1.066	0.176	6.046	0.000	1.000	1.000
credibility_t2	1.257	0.171	7.373	0.000	1.000	1.000
credibility_t3	1.620	0.204	7.954	0.000	1.000	1.000

	credibility_t1	credibility_t2	credibility_t3	total
alpha	0.8806165	0.9153443	0.9348019	0.9388137
omega	0.8786206	0.9109394	0.9352095	0.9482647
omega2	0.8786206	0.9109394	0.9352095	0.9482647
omega3	0.8966175	0.8880485	0.9465658	0.9526191
avevar	0.6442282	0.7189966	0.7831201	0.7206239

Compare the three models

	model1	model2	model3
npar	61.000	43.000	37.000
fmin	0.422	0.359	0.371
chisq	151.142	128.390	132.720
df	74.000	47.000	53.000
pvalue	0.000	0.000	0.000
chisq.scaled	114.341	86.455	93.222
df.scaled	74.000	47.000	53.000
pvalue.scaled	0.002	0.000	0.001
chisq.scaling.factor	1.322	1.485	1.424
baseline.chisq	2096.709	1907.620	1907.620
baseline.df	105.000	66.000	66.000
baseline.pvalue	0.000	0.000	0.000
baseline.chisq.scaled	1363.338	1126.721	1126.721
baseline.df.scaled	105.000	66.000	66.000
baseline.pvalue.scaled	0.000	0.000	0.000
baseline.chisq.scaling.factor	1.538	1.693	1.693
cfi	0.961	0.956	0.957
tli	0.945	0.938	0.946
nmfi	0.945	0.938	0.946
rfi	0.898	0.905	0.913
nfi	0.928	0.933	0.930
pnfi	0.654	0.664	0.747
ifi	0.962	0.956	0.957
rni	0.961	0.956	0.957
cfi.scaled	0.968	0.963	0.962
tli.scaled	0.955	0.948	0.953
cfi.robust	0.972	0.967	0.968
tli.robust	0.961	0.954	0.960
nmfi.scaled	0.955	0.948	0.953
nmfi.robust	0.961	0.954	0.960
rfi.scaled	0.881	0.892	0.897
nfi.scaled	0.916	0.923	0.917
ifi.scaled	0.969	0.963	0.963
rni.scaled	0.968	0.963	0.962
rni.robust	0.972	0.967	0.968
logl	-3551.565	-2728.482	-2730.647
unrestricted.logl	-3475.994	-2664.287	-2664.287
aic	7225.130	5542.964	5535.294
bic	7419.560	5680.021	5653.227
ntotal	179.000	179.000	179.000
bic2	7226.377	5543.843	5536.050
rmsea	0.076	0.098	0.092
rmsea.ci.lower	0.059	0.078	0.072
rmsea.ci.upper	0.094	0.119	0.111
rmsea.pvalue	0.008	0.000	0.000
rmsea.scaled	0.055	0.068	0.065
rmsea.ci.lower.scaled	0.037	0.050	0.046
rmsea.ci.upper.scaled	0.072	0.087	0.083
rmsea.pvalue.scaled	0.299	0.054	0.088
rmsea.robust	0.063	0.083	0.078
rmsea.ci.lower.robust	0.039	0.055	0.051

rmsea.ci.upper.robust	0.086	0.111	0.103
rmsea.pvalue.robust	NA	NA	NA
rmr	0.089	0.093	0.094
rmr_nomean	0.090	0.092	0.093
srmr	0.054	0.056	0.056
srmr_bentler	0.054	0.056	0.056
srmr_bentler_nomean	0.053	0.053	0.054
crmr	0.056	0.058	0.063
crmr_nomean	0.055	0.040	0.040
srmr_mplus	0.053	0.059	0.062
srmr_mplus_nomean	0.052	0.044	0.044
cn_05	113.607	90.230	96.749
cn_01	125.593	102.000	108.685
gfi	0.986	0.975	0.974
agfi	0.975	0.952	0.956
pgfi	0.541	0.509	0.574
mfi	0.806	0.797	0.800
ecvi	1.526	1.198	1.155

Warning in lavTestLRT(object = new("lavaan", version = "0.6.3", call =
lavaan::lavaan(model = model1, : lavaan WARNING: some models are based on a
different set of observed variables

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model2fit	47	5543.0	5680.0	128.39			
model1fit	74	7225.1	7419.6	151.14	21.923	27	0.7413

Warning in lavTestLRT(object = new("lavaan", version = "0.6.3", call =
lavaan::lavaan(model = model1, : lavaan WARNING: some models are based on a
different set of observed variables

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model3fit	53	5535.3	5653.2	132.72			
model1fit	74	7225.1	7419.6	151.14	17.3	21	0.6927

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model2fit	47	5543.0	5680.0	128.39			
model3fit	53	5535.3	5653.2	132.72	4.5908	6	0.5973

User Behavior

Self-Disclosure

English items

Imagine your next conversation with chatbot Robin. How likely is it that you would share the following personal information if Robin asked you to do so?

- a. Your name
- b. Your age
- c. Your email address
- d. Information about where you live
- e. Information about your financial situation
- f. Information about your social network
- g. Information about your hobbies and interests
- h. Information about your religious convictions
- i. Information about your ethnicity
- j. Information about your health
- k. Information about your political opinions

CFA

Model 1 (configural model): CFA with 3 correlated waves, with covarying residuals for the same items at T1, T2 and T3, but no equality constraints imposed

lavaan 0.6-3 ended normally after 133 iterations

Optimization method	NLMINB	
Number of free parameters	135	
Number of equality constraints	2	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	1197.178	896.742
Degrees of freedom	461	461
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.335
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	6541.179	5331.282
Degrees of freedom	528	528
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.878	0.909
Tucker-Lewis Index (TLI)	0.860	0.896

Robust Comparative Fit Index (CFI)	0.901
Robust Tucker-Lewis Index (TLI)	0.887

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-8970.004	-8970.004
Loglikelihood unrestricted model (H1)	-8371.415	-8371.415
Number of free parameters	133	133
Akaike (AIC)	18206.008	18206.008
Bayesian (BIC)	18629.930	18629.930
Sample-size adjusted Bayesian (BIC)	18208.727	18208.727

Root Mean Square Error of Approximation:

RMSEA	0.094	0.073
90 Percent Confidence Interval	0.088 0.101	0.067 0.079
P-value RMSEA <= 0.05	0.000	0.000
Robust RMSEA	0.084	
90 Percent Confidence Interval	0.076 0.092	

Standardized Root Mean Square Residual:

SRMR	0.094	0.094
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
disclosure_t1 =~						
disc_t1_1	1.000				0.926	0.505
disc_t1_2	0.804	0.129	6.232	0.000	0.745	0.582
disc_t1_3	1.047	0.140	7.463	0.000	0.970	0.542
disc_t1_4	1.059	0.156	6.785	0.000	0.981	0.584
disc_t1_5	0.812	0.132	6.162	0.000	0.753	0.483
disc_t1_6	1.278	0.181	7.046	0.000	1.184	0.685
disc_t1_7	1.180	0.171	6.911	0.000	1.094	0.736
disc_t1_8	1.781	0.237	7.523	0.000	1.650	0.867
disc_t1_9	1.744	0.222	7.839	0.000	1.616	0.876
disc_t1_10	1.315	0.175	7.521	0.000	1.219	0.718
disc_t1_11	1.478	0.208	7.123	0.000	1.369	0.767
disclosure_t2 =~						
disc_t3_1	1.000				0.899	0.492
disc_t3_2	1.139	0.120	9.515	0.000	1.024	0.638
disc_t3_3	1.158	0.159	7.259	0.000	1.041	0.575
disc_t3_4	1.218	0.173	7.042	0.000	1.096	0.633
disc_t3_5	0.973	0.149	6.527	0.000	0.876	0.578
disc_t3_6	1.209	0.193	6.259	0.000	1.088	0.655

disc_t3_7	1.172	0.159	7.359	0.000	1.055	0.693
disc_t3_8	1.790	0.241	7.424	0.000	1.610	0.831
disc_t3_9	1.850	0.250	7.398	0.000	1.664	0.852
disc_t3_10	1.289	0.175	7.374	0.000	1.160	0.681
disc_t3_11	1.565	0.232	6.756	0.000	1.408	0.751
disclosure_t3 ==						
disc_t5_1	1.000				1.044	0.565
disc_t5_2	1.020	0.102	9.956	0.000	1.064	0.644
disc_t5_3	1.027	0.135	7.625	0.000	1.073	0.594
disc_t5_4	1.012	0.129	7.842	0.000	1.056	0.614
disc_t5_5	0.822	0.119	6.921	0.000	0.858	0.564
disc_t5_6	1.130	0.160	7.072	0.000	1.180	0.697
disc_t5_7	1.133	0.124	9.150	0.000	1.183	0.737
disc_t5_8	1.667	0.196	8.512	0.000	1.741	0.866
disc_t5_9	1.700	0.193	8.808	0.000	1.775	0.890
disc_t5_10	1.237	0.153	8.077	0.000	1.292	0.720
disc_t5_11	1.398	0.176	7.937	0.000	1.460	0.777

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.disc_t1_1 ~~						
.disc_t3_1	1.643	0.282	5.829	0.000	1.643	0.651
.disc_t5_1	1.453	0.250	5.814	0.000	1.453	0.602
.disc_t3_1 ~~						
.disc_t5_1	2.096	0.281	7.465	0.000	2.096	0.864
.disc_t1_2 ~~						
.disc_t3_2	0.580	0.145	3.994	0.000	0.580	0.452
.disc_t5_2	0.498	0.131	3.793	0.000	0.498	0.379
.disc_t3_2 ~~						
.disc_t5_2	1.135	0.157	7.247	0.000	1.135	0.726
.disc_t1_3 ~~						
.disc_t3_3	1.532	0.212	7.229	0.000	1.532	0.688
.disc_t5_3	1.389	0.210	6.611	0.000	1.389	0.636
.disc_t3_3 ~~						
.disc_t5_3	1.693	0.217	7.786	0.000	1.693	0.785
.disc_t1_4 ~~						
.disc_t3_4	1.093	0.193	5.668	0.000	1.093	0.599
.disc_t5_4	0.970	0.183	5.286	0.000	0.970	0.524
.disc_t3_4 ~~						
.disc_t5_4	1.381	0.194	7.122	0.000	1.381	0.759
.disc_t1_5 ~~						
.disc_t3_5	1.239	0.157	7.871	0.000	1.239	0.735
.disc_t5_5	1.166	0.165	7.088	0.000	1.166	0.680
.disc_t3_5 ~~						
.disc_t5_5	1.201	0.162	7.394	0.000	1.201	0.773
.disc_t1_6 ~~						
.disc_t3_6	0.638	0.190	3.356	0.001	0.638	0.404
.disc_t5_6	0.674	0.199	3.391	0.001	0.674	0.441
.disc_t3_6 ~~						
.disc_t5_6	0.836	0.180	4.645	0.000	0.836	0.548
.disc_t1_7 ~~						
.disc_t3_7	0.422	0.117	3.596	0.000	0.422	0.383
.disc_t5_7	0.438	0.125	3.496	0.000	0.438	0.402
.disc_t3_7 ~~						

.disc_t5_7	0.711	0.135	5.285	0.000	0.711	0.597
.disc_t1_8 ~						
.disc_t3_8	0.368	0.152	2.423	0.015	0.368	0.361
.disc_t5_8	0.354	0.133	2.657	0.008	0.354	0.373
.disc_t3_8 ~						
.disc_t5_8	0.712	0.156	4.573	0.000	0.712	0.658
.disc_t1_9 ~						
.disc_t3_9	0.354	0.144	2.466	0.014	0.354	0.389
.disc_t5_9	0.351	0.136	2.577	0.010	0.351	0.432
.disc_t3_9 ~						
.disc_t5_9	0.495	0.156	3.175	0.001	0.495	0.530
.disc_t1_10 ~						
.disc_t3_10	0.806	0.162	4.977	0.000	0.806	0.546
.disc_t5_10	0.787	0.171	4.604	0.000	0.787	0.535
.disc_t3_10 ~						
.disc_t5_10	0.799	0.191	4.173	0.000	0.799	0.514
.disc_t1_11 ~						
.disc_t3_11	0.814	0.144	5.641	0.000	0.814	0.575
.disc_t5_11	0.804	0.142	5.672	0.000	0.804	0.592
.disc_t3_11 ~						
.disc_t5_11	1.067	0.150	7.112	0.000	1.067	0.729
disclosure_t1 ~						
disclosure_t2	0.677	0.181	3.735	0.000	0.812	0.812
disclosure_t3	0.793	0.198	4.005	0.000	0.820	0.820
disclosure_t2 ~						
disclosure_t3	0.881	0.232	3.796	0.000	0.939	0.939

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.dsc_t1_1 (it1)	4.953	0.129	38.485	0.000	4.953	2.698
.dsc_t1_2	5.610	0.096	58.420	0.000	5.610	4.387
.dsc_t1_3	3.480	0.131	26.558	0.000	3.480	1.946
.dsc_t1_4	3.535	0.124	28.557	0.000	3.535	2.107
.dsc_t1_5	2.520	0.120	21.041	0.000	2.520	1.618
.dsc_t1_6	3.501	0.127	27.587	0.000	3.501	2.026
.dsc_t1_7	5.138	0.108	47.491	0.000	5.138	3.459
.dsc_t1_8	4.486	0.141	31.740	0.000	4.486	2.359
.dsc_t1_9	4.660	0.137	34.037	0.000	4.660	2.526
.dsc_1_10	4.556	0.123	36.906	0.000	4.556	2.683
.dsc_1_11	4.136	0.133	31.125	0.000	4.136	2.316
.dsc_t3_1 (it1)	4.953	0.129	38.485	0.000	4.953	2.707
.dsc_t3_2	5.368	0.117	45.913	0.000	5.368	3.344
.dsc_t3_3	3.346	0.135	24.798	0.000	3.346	1.847
.dsc_t3_4	3.469	0.131	26.500	0.000	3.469	2.005
.dsc_t3_5	2.469	0.118	20.868	0.000	2.469	1.630
.dsc_t3_6	3.184	0.124	25.613	0.000	3.184	1.918
.dsc_t3_7	4.994	0.111	44.870	0.000	4.994	3.280
.dsc_t3_8	4.106	0.143	28.660	0.000	4.106	2.120
.dsc_t3_9	4.190	0.144	29.128	0.000	4.190	2.145
.dsc_3_10	4.167	0.126	33.124	0.000	4.167	2.445
.dsc_3_11	3.614	0.144	25.132	0.000	3.614	1.929
.dsc_t5_1 (it1)	4.953	0.129	38.485	0.000	4.953	2.682
.dsc_t5_2	5.224	0.118	44.121	0.000	5.224	3.160
.dsc_t5_3	3.353	0.134	25.032	0.000	3.353	1.855

.dsc_t5_4	3.481	0.129	26.958	0.000	3.481	2.023
.dsc_t5_5	2.521	0.118	21.429	0.000	2.521	1.656
.dsc_t5_6	3.207	0.126	25.391	0.000	3.207	1.893
.dsc_t5_7	4.972	0.116	42.908	0.000	4.972	3.098
.dsc_t5_8	4.025	0.148	27.203	0.000	4.025	2.003
.dsc_t5_9	4.159	0.144	28.787	0.000	4.159	2.085
.dsc_5_10	4.123	0.132	31.300	0.000	4.123	2.299
.dsc_5_11	3.641	0.143	25.483	0.000	3.641	1.937
dsclsr_1	0.000				0.000	0.000
dsclsr_2	0.000				0.000	0.000
dsclsr_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.disc_t1_1	2.511	0.319	7.875	0.000	2.511	0.745
.disc_t1_2	1.081	0.143	7.575	0.000	1.081	0.661
.disc_t1_3	2.258	0.229	9.841	0.000	2.258	0.706
.disc_t1_4	1.854	0.210	8.818	0.000	1.854	0.658
.disc_t1_5	1.861	0.181	10.274	0.000	1.861	0.767
.disc_t1_6	1.583	0.241	6.555	0.000	1.583	0.530
.disc_t1_7	1.011	0.165	6.144	0.000	1.011	0.458
.disc_t1_8	0.895	0.174	5.148	0.000	0.895	0.248
.disc_t1_9	0.792	0.128	6.205	0.000	0.792	0.233
.disc_t1_10	1.398	0.187	7.465	0.000	1.398	0.485
.disc_t1_11	1.314	0.159	8.283	0.000	1.314	0.412
.disc_t3_1	2.538	0.306	8.303	0.000	2.538	0.758
.disc_t3_2	1.527	0.170	8.977	0.000	1.527	0.593
.disc_t3_3	2.197	0.243	9.035	0.000	2.197	0.670
.disc_t3_4	1.794	0.207	8.676	0.000	1.794	0.599
.disc_t3_5	1.528	0.163	9.375	0.000	1.528	0.666
.disc_t3_6	1.573	0.203	7.731	0.000	1.573	0.571
.disc_t3_7	1.206	0.162	7.446	0.000	1.206	0.520
.disc_t3_8	1.161	0.176	6.609	0.000	1.161	0.309
.disc_t3_9	1.046	0.174	6.023	0.000	1.046	0.274
.disc_t3_10	1.559	0.199	7.840	0.000	1.559	0.537
.disc_t3_11	1.528	0.186	8.225	0.000	1.528	0.435
.disc_t5_1	2.320	0.291	7.972	0.000	2.320	0.680
.disc_t5_2	1.600	0.193	8.284	0.000	1.600	0.585
.disc_t5_3	2.115	0.224	9.434	0.000	2.115	0.648
.disc_t5_4	1.846	0.205	8.987	0.000	1.846	0.623
.disc_t5_5	1.581	0.172	9.212	0.000	1.581	0.682
.disc_t5_6	1.477	0.218	6.776	0.000	1.477	0.515
.disc_t5_7	1.177	0.151	7.809	0.000	1.177	0.457
.disc_t5_8	1.010	0.150	6.717	0.000	1.010	0.250
.disc_t5_9	0.831	0.166	4.999	0.000	0.831	0.209
.disc_t5_10	1.547	0.208	7.443	0.000	1.547	0.481
.disc_t5_11	1.403	0.170	8.246	0.000	1.403	0.397
disclosure_t1	0.858	0.230	3.738	0.000	1.000	1.000
disclosure_t2	0.809	0.227	3.568	0.000	1.000	1.000
disclosure_t3	1.090	0.268	4.073	0.000	1.000	1.000

	disclosure_t1	disclosure_t2	disclosure_t3	total
alpha	0.9045924	0.9082062	0.9213838	0.9656986
omega	0.9042585	0.9043472	0.9176487	0.9252794

omega2	0.9042585	0.9043472	0.9176487	0.9252794
omega3	0.8725007	0.8570138	0.8635743	0.8718569
avevar	0.4781619	0.4737043	0.5156246	0.4897219

Model 2 (weak invariance): CFA with constrained factor loadings and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 126 iterations

Optimization method	NLMINB	
Number of free parameters	135	
Number of equality constraints	22	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	1215.490	927.053
Degrees of freedom	481	481
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.311
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	6541.179	5331.282
Degrees of freedom	528	528
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.878	0.907
Tucker-Lewis Index (TLI)	0.866	0.898
Robust Comparative Fit Index (CFI)		0.901
Robust Tucker-Lewis Index (TLI)		0.891

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-8979.160	-8979.160
Loglikelihood unrestricted model (H1)	-8371.415	-8371.415
Number of free parameters	113	113
Akaike (AIC)	18184.320	18184.320
Bayesian (BIC)	18544.494	18544.494
Sample-size adjusted Bayesian (BIC)	18186.630	18186.630

Root Mean Square Error of Approximation:

RMSEA	0.092	0.072
90 Percent Confidence Interval	0.086 0.099	0.066 0.078
P-value RMSEA <= 0.05	0.000	0.000
Robust RMSEA		0.082
90 Percent Confidence Interval		0.074 0.090

Standardized Root Mean Square Residual:

SRMR 0.099 0.099

Parameter Estimates:

Information Expected
 Information saturated (h1) model Structured
 Standard Errors Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
disclosure_t1 =~						
dsc_t1_1	1.000				0.926	0.504
dsc_t1_2 (a1)	0.925	0.101	9.163	0.000	0.856	0.636
dsc_t1_3 (a2)	1.058	0.124	8.536	0.000	0.979	0.546
dsc_t1_4 (a3)	1.068	0.129	8.305	0.000	0.989	0.588
dsc_t1_5 (a4)	0.863	0.117	7.394	0.000	0.799	0.506
dsc_t1_6 (a5)	1.198	0.154	7.779	0.000	1.109	0.660
dsc_t1_7 (a6)	1.158	0.114	10.177	0.000	1.072	0.729
dsc_t1_8 (a7)	1.746	0.195	8.960	0.000	1.617	0.861
dsc_t1_9 (a8)	1.753	0.188	9.309	0.000	1.623	0.876
dsc_1_10 (a9)	1.277	0.135	9.448	0.000	1.182	0.708
dsc_1_11 (a10)	1.473	0.175	8.418	0.000	1.364	0.766
disclosure_t2 =~						
dsc_t3_1	1.000				0.952	0.512
dsc_t3_2 (a1)	0.925	0.101	9.163	0.000	0.880	0.575
dsc_t3_3 (a2)	1.058	0.124	8.536	0.000	1.007	0.559
dsc_t3_4 (a3)	1.068	0.129	8.305	0.000	1.017	0.601
dsc_t3_5 (a4)	0.863	0.117	7.394	0.000	0.821	0.550
dsc_t3_6 (a5)	1.198	0.154	7.779	0.000	1.140	0.673
dsc_t3_7 (a6)	1.158	0.114	10.177	0.000	1.103	0.709
dsc_t3_8 (a7)	1.746	0.195	8.960	0.000	1.662	0.843
dsc_t3_9 (a8)	1.753	0.188	9.309	0.000	1.669	0.855
dsc_3_10 (a9)	1.277	0.135	9.448	0.000	1.216	0.699
dsc_3_11 (a10)	1.473	0.175	8.418	0.000	1.402	0.753
disclosure_t3 =~						
dsc_t5_1	1.000				1.009	0.549
dsc_t5_2 (a1)	0.925	0.101	9.163	0.000	0.933	0.588
dsc_t5_3 (a2)	1.058	0.124	8.536	0.000	1.067	0.590
dsc_t5_4 (a3)	1.068	0.129	8.305	0.000	1.078	0.620
dsc_t5_5 (a4)	0.863	0.117	7.394	0.000	0.870	0.570
dsc_t5_6 (a5)	1.198	0.154	7.779	0.000	1.208	0.706
dsc_t5_7 (a6)	1.158	0.114	10.177	0.000	1.168	0.730
dsc_t5_8 (a7)	1.746	0.195	8.960	0.000	1.761	0.872
dsc_t5_9 (a8)	1.753	0.188	9.309	0.000	1.769	0.889
dsc_5_10 (a9)	1.277	0.135	9.448	0.000	1.288	0.720
dsc_5_11 (a10)	1.473	0.175	8.418	0.000	1.486	0.786

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.disc_t1_1 ~~						
.disc_t3_1	1.647	0.284	5.790	0.000	1.647	0.650

.disc_t5_1	1.472	0.251	5.877	0.000	1.472	0.604
.disc_t3_1 ~						
.disc_t5_1	2.121	0.284	7.475	0.000	2.121	0.863
.disc_t1_2 ~						
.disc_t3_2	0.577	0.151	3.836	0.000	0.577	0.444
.disc_t5_2	0.486	0.137	3.549	0.000	0.486	0.365
.disc_t3_2 ~						
.disc_t5_2	1.166	0.162	7.204	0.000	1.166	0.726
.disc_t1_3 ~						
.disc_t3_3	1.541	0.212	7.281	0.000	1.541	0.688
.disc_t5_3	1.394	0.211	6.618	0.000	1.394	0.636
.disc_t3_3 ~						
.disc_t5_3	1.710	0.218	7.851	0.000	1.710	0.785
.disc_t1_4 ~						
.disc_t3_4	1.106	0.192	5.753	0.000	1.106	0.600
.disc_t5_4	0.972	0.185	5.252	0.000	0.972	0.524
.disc_t3_4 ~						
.disc_t5_4	1.395	0.193	7.241	0.000	1.395	0.757
.disc_t1_5 ~						
.disc_t3_5	1.244	0.158	7.867	0.000	1.244	0.733
.disc_t5_5	1.155	0.165	7.010	0.000	1.155	0.676
.disc_t3_5 ~						
.disc_t5_5	1.211	0.163	7.437	0.000	1.211	0.773
.disc_t1_6 ~						
.disc_t3_6	0.635	0.191	3.326	0.001	0.635	0.401
.disc_t5_6	0.671	0.197	3.404	0.001	0.671	0.438
.disc_t3_6 ~						
.disc_t5_6	0.831	0.185	4.504	0.000	0.831	0.547
.disc_t1_7 ~						
.disc_t3_7	0.421	0.119	3.529	0.000	0.421	0.381
.disc_t5_7	0.444	0.125	3.550	0.000	0.444	0.404
.disc_t3_7 ~						
.disc_t5_7	0.719	0.137	5.264	0.000	0.719	0.600
.disc_t1_8 ~						
.disc_t3_8	0.364	0.153	2.377	0.017	0.364	0.359
.disc_t5_8	0.349	0.134	2.611	0.009	0.349	0.370
.disc_t3_8 ~						
.disc_t5_8	0.684	0.154	4.453	0.000	0.684	0.650
.disc_t1_9 ~						
.disc_t3_9	0.356	0.146	2.434	0.015	0.356	0.392
.disc_t5_9	0.359	0.137	2.617	0.009	0.359	0.439
.disc_t3_9 ~						
.disc_t5_9	0.487	0.157	3.093	0.002	0.487	0.527
.disc_t1_10 ~						
.disc_t3_10	0.791	0.161	4.905	0.000	0.791	0.539
.disc_t5_10	0.777	0.168	4.623	0.000	0.777	0.530
.disc_t3_10 ~						
.disc_t5_10	0.794	0.193	4.109	0.000	0.794	0.514
.disc_t1_11 ~						
.disc_t3_11	0.799	0.143	5.596	0.000	0.799	0.569
.disc_t5_11	0.786	0.140	5.605	0.000	0.786	0.588
.disc_t3_11 ~						
.disc_t5_11	1.036	0.148	7.012	0.000	1.036	0.724
disclosure_t1 ~						

disclosure_t2	0.716	0.183	3.905	0.000	0.813	0.813
disclosure_t3	0.765	0.196	3.908	0.000	0.819	0.819
disclosure_t2 ~~						
disclosure_t3	0.901	0.220	4.092	0.000	0.939	0.939

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.dsc_t1_1 (it1)	4.956	0.129	38.443	0.000	4.956	2.700
.dsc_t1_2	5.611	0.096	58.609	0.000	5.611	4.171
.dsc_t1_3	3.482	0.131	26.498	0.000	3.482	1.943
.dsc_t1_4	3.538	0.124	28.426	0.000	3.538	2.103
.dsc_t1_5	2.522	0.120	21.009	0.000	2.522	1.599
.dsc_t1_6	3.504	0.128	27.435	0.000	3.504	2.084
.dsc_t1_7	5.141	0.109	47.309	0.000	5.141	3.495
.dsc_t1_8	4.491	0.141	31.804	0.000	4.491	2.393
.dsc_t1_9	4.664	0.137	33.978	0.000	4.664	2.516
.dsc_1_10	4.560	0.124	36.746	0.000	4.560	2.731
.dsc_1_11	4.140	0.133	31.045	0.000	4.140	2.325
.dsc_t3_1 (it1)	4.956	0.129	38.443	0.000	4.956	2.664
.dsc_t3_2	5.371	0.116	46.131	0.000	5.371	3.510
.dsc_t3_3	3.349	0.135	24.827	0.000	3.349	1.861
.dsc_t3_4	3.472	0.131	26.457	0.000	3.472	2.051
.dsc_t3_5	2.472	0.119	20.793	0.000	2.472	1.655
.dsc_t3_6	3.188	0.125	25.429	0.000	3.188	1.881
.dsc_t3_7	4.998	0.112	44.773	0.000	4.998	3.213
.dsc_t3_8	4.111	0.144	28.521	0.000	4.111	2.084
.dsc_t3_9	4.195	0.144	29.091	0.000	4.195	2.149
.dsc_3_10	4.171	0.126	33.014	0.000	4.171	2.398
.dsc_3_11	3.619	0.144	25.101	0.000	3.619	1.944
.dsc_t5_1 (it1)	4.956	0.129	38.443	0.000	4.956	2.695
.dsc_t5_2	5.228	0.119	43.780	0.000	5.228	3.296
.dsc_t5_3	3.356	0.134	24.964	0.000	3.356	1.857
.dsc_t5_4	3.484	0.129	26.928	0.000	3.484	2.006
.dsc_t5_5	2.524	0.118	21.366	0.000	2.524	1.652
.dsc_t5_6	3.211	0.127	25.353	0.000	3.211	1.876
.dsc_t5_7	4.976	0.116	42.975	0.000	4.976	3.110
.dsc_t5_8	4.031	0.148	27.161	0.000	4.031	1.995
.dsc_t5_9	4.165	0.145	28.778	0.000	4.165	2.093
.dsc_5_10	4.127	0.132	31.275	0.000	4.127	2.305
.dsc_5_11	3.646	0.143	25.579	0.000	3.646	1.929
dsclsr_1	0.000				0.000	0.000
dsclsr_2	0.000				0.000	0.000
dsclsr_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.disc_t1_1	2.511	0.317	7.922	0.000	2.511	0.746
.disc_t1_2	1.078	0.142	7.576	0.000	1.078	0.595
.disc_t1_3	2.255	0.229	9.866	0.000	2.255	0.702
.disc_t1_4	1.854	0.209	8.880	0.000	1.854	0.655
.disc_t1_5	1.851	0.182	10.161	0.000	1.851	0.744
.disc_t1_6	1.597	0.228	7.008	0.000	1.597	0.565
.disc_t1_7	1.014	0.160	6.359	0.000	1.014	0.469
.disc_t1_8	0.909	0.169	5.385	0.000	0.909	0.258

.disc_t1_9	0.802	0.130	6.189	0.000	0.802	0.233
.disc_t1_10	1.390	0.179	7.747	0.000	1.390	0.499
.disc_t1_11	1.312	0.154	8.509	0.000	1.312	0.414
.disc_t3_1	2.556	0.312	8.178	0.000	2.556	0.738
.disc_t3_2	1.568	0.177	8.867	0.000	1.568	0.669
.disc_t3_3	2.226	0.240	9.266	0.000	2.226	0.687
.disc_t3_4	1.832	0.200	9.148	0.000	1.832	0.639
.disc_t3_5	1.556	0.164	9.482	0.000	1.556	0.697
.disc_t3_6	1.571	0.210	7.478	0.000	1.571	0.547
.disc_t3_7	1.204	0.163	7.390	0.000	1.204	0.498
.disc_t3_8	1.128	0.175	6.427	0.000	1.128	0.290
.disc_t3_9	1.025	0.174	5.906	0.000	1.025	0.269
.disc_t3_10	1.549	0.202	7.682	0.000	1.549	0.512
.disc_t3_11	1.500	0.180	8.340	0.000	1.500	0.433
.disc_t5_1	2.364	0.289	8.191	0.000	2.364	0.699
.disc_t5_2	1.645	0.196	8.403	0.000	1.645	0.654
.disc_t5_3	2.128	0.225	9.465	0.000	2.128	0.652
.disc_t5_4	1.855	0.209	8.898	0.000	1.855	0.615
.disc_t5_5	1.575	0.172	9.159	0.000	1.575	0.675
.disc_t5_6	1.468	0.219	6.705	0.000	1.468	0.501
.disc_t5_7	1.195	0.152	7.879	0.000	1.195	0.467
.disc_t5_8	0.982	0.148	6.644	0.000	0.982	0.240
.disc_t5_9	0.831	0.165	5.036	0.000	0.831	0.210
.disc_t5_10	1.545	0.207	7.480	0.000	1.545	0.482
.disc_t5_11	1.365	0.168	8.123	0.000	1.365	0.382
disclosure_t1	0.857	0.203	4.217	0.000	1.000	1.000
disclosure_t2	0.906	0.216	4.191	0.000	1.000	1.000
disclosure_t3	1.018	0.241	4.215	0.000	1.000	1.000

	disclosure_t1	disclosure_t2	disclosure_t3	total
alpha	0.9045924	0.9082062	0.9213838	0.9656986
omega	0.9043295	0.9033711	0.9164553	0.9247378
omega2	0.9043295	0.9033711	0.9164553	0.9247378
omega3	0.8739851	0.8501893	0.8524510	0.8660065
avevar	0.4759398	0.4731899	0.5131304	0.4879573

Model 3 (strong invariance): CFA with constrained factor loadings, intercepts, and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 99 iterations

Optimization method	NLMINB	
Number of free parameters	135	
Number of equality constraints	42	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	1274.305	1003.402
Degrees of freedom	501	501
P-value (Chi-square)	0.000	0.000
Scaling correction factor		1.270
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	6541.179	5331.282
Degrees of freedom	528	528
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.871	0.895
Tucker-Lewis Index (TLI)	0.864	0.890
Robust Comparative Fit Index (CFI)		0.892
Robust Tucker-Lewis Index (TLI)		0.886

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-9008.567	-9008.567
Loglikelihood unrestricted model (H1)	-8371.415	-8371.415
Number of free parameters	93	93
Akaike (AIC)	18203.135	18203.135
Bayesian (BIC)	18499.562	18499.562
Sample-size adjusted Bayesian (BIC)	18205.036	18205.036

Root Mean Square Error of Approximation:

RMSEA		0.093	0.075
90 Percent Confidence Interval	0.087	0.099	0.069 0.081
P-value RMSEA <= 0.05		0.000	0.000
Robust RMSEA			0.084
90 Percent Confidence Interval			0.077 0.092

Standardized Root Mean Square Residual:

SRMR	0.108	0.108
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
disclosure_t1 =~						
dsc_t1_1	1.000				0.886	0.486
dsc_t1_2 (a1)	0.974	0.105	9.303	0.000	0.863	0.638
dsc_t1_3 (a2)	1.073	0.125	8.596	0.000	0.951	0.533
dsc_t1_4 (a3)	1.078	0.130	8.298	0.000	0.956	0.572
dsc_t1_5 (a4)	0.858	0.116	7.427	0.000	0.761	0.485
dsc_t1_6 (a5)	1.254	0.160	7.836	0.000	1.112	0.659
dsc_t1_7 (a6)	1.200	0.118	10.176	0.000	1.064	0.725

dsc_t1_8 (a7)	1.844	0.207	8.912	0.000	1.635	0.867
dsc_t1_9 (a8)	1.857	0.201	9.251	0.000	1.646	0.881
dsc_1_10 (a9)	1.357	0.143	9.497	0.000	1.203	0.712
dsc_1_11 (a10)	1.574	0.186	8.449	0.000	1.396	0.772
disclosure_t2 ==						
dsc_t3_1	1.000				0.915	0.495
dsc_t3_2 (a1)	0.974	0.105	9.303	0.000	0.891	0.579
dsc_t3_3 (a2)	1.073	0.125	8.596	0.000	0.982	0.548
dsc_t3_4 (a3)	1.078	0.130	8.298	0.000	0.987	0.587
dsc_t3_5 (a4)	0.858	0.116	7.427	0.000	0.785	0.530
dsc_t3_6 (a5)	1.254	0.160	7.836	0.000	1.148	0.674
dsc_t3_7 (a6)	1.200	0.118	10.176	0.000	1.098	0.707
dsc_t3_8 (a7)	1.844	0.207	8.912	0.000	1.688	0.849
dsc_t3_9 (a8)	1.857	0.201	9.251	0.000	1.700	0.860
dsc_3_10 (a9)	1.357	0.143	9.497	0.000	1.242	0.705
dsc_3_11 (a10)	1.574	0.186	8.449	0.000	1.441	0.762
disclosure_t3 ==						
dsc_t5_1	1.000				0.971	0.531
dsc_t5_2 (a1)	0.974	0.105	9.303	0.000	0.945	0.590
dsc_t5_3 (a2)	1.073	0.125	8.596	0.000	1.041	0.579
dsc_t5_4 (a3)	1.078	0.130	8.298	0.000	1.047	0.607
dsc_t5_5 (a4)	0.858	0.116	7.427	0.000	0.833	0.550
dsc_t5_6 (a5)	1.254	0.160	7.836	0.000	1.218	0.708
dsc_t5_7 (a6)	1.200	0.118	10.176	0.000	1.165	0.728
dsc_t5_8 (a7)	1.844	0.207	8.912	0.000	1.791	0.877
dsc_t5_9 (a8)	1.857	0.201	9.251	0.000	1.803	0.894
dsc_5_10 (a9)	1.357	0.143	9.497	0.000	1.318	0.726
dsc_5_11 (a10)	1.574	0.186	8.449	0.000	1.529	0.796

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.disc_t1_1 ==						
.disc_t3_1	1.662	0.282	5.888	0.000	1.662	0.649
.disc_t5_1	1.488	0.249	5.964	0.000	1.488	0.601
.disc_t3_1 ==						
.disc_t5_1	2.151	0.281	7.645	0.000	2.151	0.864
.disc_t1_2 ==						
.disc_t3_2	0.579	0.151	3.827	0.000	0.579	0.444
.disc_t5_2	0.483	0.138	3.491	0.000	0.483	0.358
.disc_t3_2 ==						
.disc_t5_2	1.177	0.163	7.207	0.000	1.177	0.724
.disc_t1_3 ==						
.disc_t3_3	1.552	0.209	7.412	0.000	1.552	0.687
.disc_t5_3	1.404	0.209	6.732	0.000	1.404	0.635
.disc_t3_3 ==						
.disc_t5_3	1.724	0.216	7.992	0.000	1.724	0.786
.disc_t1_4 ==						
.disc_t3_4	1.118	0.191	5.850	0.000	1.118	0.598
.disc_t5_4	0.979	0.183	5.358	0.000	0.979	0.521
.disc_t3_4 ==						
.disc_t5_4	1.417	0.190	7.470	0.000	1.417	0.758
.disc_t1_5 ==						
.disc_t3_5	1.263	0.159	7.947	0.000	1.263	0.732
.disc_t5_5	1.166	0.164	7.089	0.000	1.166	0.672

.disc_t3_5 ~							
.disc_t5_5	1.233	0.164	7.530	0.000	1.233	0.775	
.disc_t1_6 ~							
.disc_t3_6	0.641	0.192	3.339	0.001	0.641	0.401	
.disc_t5_6	0.678	0.197	3.438	0.001	0.678	0.440	
.disc_t3_6 ~							
.disc_t5_6	0.837	0.185	4.528	0.000	0.837	0.549	
.disc_t1_7 ~							
.disc_t3_7	0.425	0.119	3.554	0.000	0.425	0.383	
.disc_t5_7	0.449	0.125	3.582	0.000	0.449	0.405	
.disc_t3_7 ~							
.disc_t5_7	0.725	0.137	5.300	0.000	0.725	0.602	
.disc_t1_8 ~							
.disc_t3_8	0.352	0.151	2.322	0.020	0.352	0.356	
.disc_t5_8	0.338	0.132	2.555	0.011	0.338	0.368	
.disc_t3_8 ~							
.disc_t5_8	0.663	0.153	4.343	0.000	0.663	0.644	
.disc_t1_9 ~							
.disc_t3_9	0.344	0.145	2.370	0.018	0.344	0.387	
.disc_t5_9	0.348	0.137	2.550	0.011	0.348	0.436	
.disc_t3_9 ~							
.disc_t5_9	0.479	0.159	3.015	0.003	0.479	0.525	
.disc_t1_10 ~							
.disc_t3_10	0.789	0.162	4.865	0.000	0.789	0.533	
.disc_t5_10	0.777	0.169	4.593	0.000	0.777	0.526	
.disc_t3_10 ~							
.disc_t5_10	0.807	0.196	4.117	0.000	0.807	0.519	
.disc_t1_11 ~							
.disc_t3_11	0.776	0.142	5.447	0.000	0.776	0.552	
.disc_t5_11	0.769	0.140	5.503	0.000	0.769	0.577	
.disc_t3_11 ~							
.disc_t5_11	1.028	0.149	6.916	0.000	1.028	0.723	
disclosure_t1 ~							
disclosure_t2	0.636	0.166	3.823	0.000	0.784	0.784	
disclosure_t3	0.678	0.177	3.824	0.000	0.788	0.788	
disclosure_t2 ~							
disclosure_t3	0.835	0.206	4.059	0.000	0.939	0.939	

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.dsc_1_1 (it1)	4.996	0.128	39.147	0.000	4.996	2.737
.dsc_1_2 (it2)	5.490	0.093	58.816	0.000	5.490	4.060
.dsc_1_3 (it3)	3.457	0.121	28.569	0.000	3.457	1.939
.dsc_1_4 (it4)	3.550	0.114	31.100	0.000	3.550	2.124
.dsc_1_5 (it5)	2.572	0.110	23.308	0.000	2.572	1.640
.dsc_1_6 (it6)	3.376	0.110	30.787	0.000	3.376	2.001
.dsc_1_7 (it7)	5.098	0.097	52.637	0.000	5.098	3.476
.dsc_1_8 (it8)	4.325	0.129	33.506	0.000	4.325	2.294
.dsc_1_9 (it9)	4.464	0.129	34.492	0.000	4.464	2.389
.ds_1_10 (it10)	4.374	0.112	38.980	0.000	4.374	2.589
.ds_1_11 (it11)	3.921	0.126	31.048	0.000	3.921	2.170
.dsc_3_1 (it1)	4.996	0.128	39.147	0.000	4.996	2.704
.dsc_3_2 (it2)	5.490	0.093	58.816	0.000	5.490	3.567
.dsc_3_3 (it3)	3.457	0.121	28.569	0.000	3.457	1.930

.dsc_3_4 (it4)	3.550	0.114	31.100	0.000	3.550	2.110
.dsc_3_5 (it5)	2.572	0.110	23.308	0.000	2.572	1.735
.dsc_3_6 (it6)	3.376	0.110	30.787	0.000	3.376	1.983
.dsc_3_7 (it7)	5.098	0.097	52.637	0.000	5.098	3.282
.dsc_3_8 (it8)	4.325	0.129	33.506	0.000	4.325	2.175
.dsc_3_9 (it9)	4.464	0.129	34.492	0.000	4.464	2.259
.ds_3_10 (it10)	4.374	0.112	38.980	0.000	4.374	2.484
.ds_3_11 (it11)	3.921	0.126	31.048	0.000	3.921	2.073
.dsc_5_1 (it1)	4.996	0.128	39.147	0.000	4.996	2.730
.dsc_5_2 (it2)	5.490	0.093	58.816	0.000	5.490	3.423
.dsc_5_3 (it3)	3.457	0.121	28.569	0.000	3.457	1.923
.dsc_5_4 (it4)	3.550	0.114	31.100	0.000	3.550	2.057
.dsc_5_5 (it5)	2.572	0.110	23.308	0.000	2.572	1.698
.dsc_5_6 (it6)	3.376	0.110	30.787	0.000	3.376	1.964
.dsc_5_7 (it7)	5.098	0.097	52.637	0.000	5.098	3.185
.dsc_5_8 (it8)	4.325	0.129	33.506	0.000	4.325	2.119
.dsc_5_9 (it9)	4.464	0.129	34.492	0.000	4.464	2.212
.ds_5_10 (it10)	4.374	0.112	38.980	0.000	4.374	2.411
.ds_5_11 (it11)	3.921	0.126	31.048	0.000	3.921	2.042
dscls_1	0.000				0.000	0.000
dscls_2	0.000				0.000	0.000
dscls_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.disc_t1_1	2.546	0.314	8.101	0.000	2.546	0.764
.disc_t1_2	1.084	0.143	7.564	0.000	1.084	0.593
.disc_t1_3	2.275	0.226	10.080	0.000	2.275	0.716
.disc_t1_4	1.880	0.206	9.122	0.000	1.880	0.673
.disc_t1_5	1.881	0.182	10.359	0.000	1.881	0.765
.disc_t1_6	1.612	0.230	7.022	0.000	1.612	0.566
.disc_t1_7	1.019	0.160	6.386	0.000	1.019	0.474
.disc_t1_8	0.883	0.167	5.303	0.000	0.883	0.248
.disc_t1_9	0.781	0.127	6.127	0.000	0.781	0.224
.disc_t1_10	1.407	0.184	7.663	0.000	1.407	0.493
.disc_t1_11	1.317	0.156	8.440	0.000	1.317	0.403
.disc_t3_1	2.577	0.309	8.341	0.000	2.577	0.755
.disc_t3_2	1.575	0.178	8.838	0.000	1.575	0.665
.disc_t3_3	2.244	0.237	9.459	0.000	2.244	0.700
.disc_t3_4	1.857	0.198	9.389	0.000	1.857	0.656
.disc_t3_5	1.581	0.166	9.549	0.000	1.581	0.719
.disc_t3_6	1.581	0.211	7.492	0.000	1.581	0.546
.disc_t3_7	1.206	0.162	7.434	0.000	1.206	0.500
.disc_t3_8	1.106	0.175	6.316	0.000	1.106	0.280
.disc_t3_9	1.014	0.175	5.804	0.000	1.014	0.260
.disc_t3_10	1.557	0.205	7.612	0.000	1.557	0.502
.disc_t3_11	1.500	0.182	8.231	0.000	1.500	0.419
.disc_t5_1	2.406	0.285	8.429	0.000	2.406	0.718
.disc_t5_2	1.678	0.198	8.486	0.000	1.678	0.652
.disc_t5_3	2.148	0.222	9.655	0.000	2.148	0.664
.disc_t5_4	1.881	0.204	9.199	0.000	1.881	0.632
.disc_t5_5	1.600	0.172	9.280	0.000	1.600	0.697
.disc_t5_6	1.471	0.218	6.757	0.000	1.471	0.498
.disc_t5_7	1.204	0.153	7.891	0.000	1.204	0.470

.disc_t5_8	0.959	0.146	6.561	0.000	0.959	0.230
.disc_t5_9	0.819	0.166	4.935	0.000	0.819	0.201
.disc_t5_10	1.554	0.210	7.393	0.000	1.554	0.472
.disc_t5_11	1.350	0.170	7.942	0.000	1.350	0.366
disclosure_t1	0.786	0.189	4.167	0.000	1.000	1.000
disclosure_t2	0.838	0.202	4.152	0.000	1.000	1.000
disclosure_t3	0.943	0.226	4.178	0.000	1.000	1.000

	disclosure_t1	disclosure_t2	disclosure_t3	total
alpha	0.9045924	0.9082062	0.9213838	0.9656986
omega	0.9031309	0.9030524	0.9162103	0.9233472
omega2	0.9031309	0.9030524	0.9162103	0.9233472
omega3	0.8678300	0.8511605	0.8554732	0.8531522
avevar	0.4746173	0.4743936	0.5144484	0.4884366

Compare the three models

	model1	model2	model3
npar	133.000	113.000	93.000
fmin	3.344	3.395	3.560
chisq	1197.178	1215.490	1274.305
df	461.000	481.000	501.000
pvalue	0.000	0.000	0.000
chisq.scaled	896.742	927.053	1003.402
df.scaled	461.000	481.000	501.000
pvalue.scaled	0.000	0.000	0.000
chisq.scaling.factor	1.335	1.311	1.270
baseline.chisq	6541.179	6541.179	6541.179
baseline.df	528.000	528.000	528.000
baseline.pvalue	0.000	0.000	0.000
baseline.chisq.scaled	5331.282	5331.282	5331.282
baseline.df.scaled	528.000	528.000	528.000
baseline.pvalue.scaled	0.000	0.000	0.000
baseline.chisq.scaling.factor	1.227	1.227	1.227
cfi	0.878	0.878	0.871
tli	0.860	0.866	0.864
mnfi	0.860	0.866	0.864
rfi	0.790	0.796	0.795
nfi	0.817	0.814	0.805
pnfi	0.713	0.742	0.764
ifi	0.879	0.879	0.872
rni	0.878	0.878	0.871
cfi.scaled	0.909	0.907	0.895
tli.scaled	0.896	0.898	0.890
cfi.robust	0.901	0.901	0.892
tli.robust	0.887	0.891	0.886
mnfi.scaled	0.896	0.898	0.890
mnfi.robust	0.887	0.891	0.886
rfi.scaled	0.807	0.809	0.802
nfi.scaled	0.832	0.826	0.812
ifi.scaled	0.911	0.908	0.896
rni.scaled	0.909	0.907	0.895
rni.robust	0.901	0.901	0.892

logl	-8970.004	-8979.160	-9008.567
unrestricted.logl	-8371.415	-8371.415	-8371.415
aic	18206.008	18184.320	18203.135
bic	18629.930	18544.494	18499.562
ntotal	179.000	179.000	179.000
bic2	18208.727	18186.630	18205.036
rmsea	0.094	0.092	0.093
rmsea.ci.lower	0.088	0.086	0.087
rmsea.ci.upper	0.101	0.099	0.099
rmsea.pvalue	0.000	0.000	0.000
rmsea.scaled	0.073	0.072	0.075
rmsea.ci.lower.scaled	0.067	0.066	0.069
rmsea.ci.upper.scaled	0.079	0.078	0.081
rmsea.pvalue.scaled	0.000	0.000	0.000
rmsea.robust	0.084	0.082	0.084
rmsea.ci.lower.robust	0.076	0.074	0.077
rmsea.ci.upper.robust	0.092	0.090	0.092
rmsea.pvalue.robust	NA	NA	NA
rmr	0.282	0.295	0.317
rmr_nomean	0.291	0.304	0.323
srmr	0.094	0.099	0.108
srmr_bentler	0.094	0.099	0.108
srmr_bentler_nomean	0.097	0.102	0.108
crmr	0.094	0.097	0.106
crmr_nomean	0.096	0.099	0.105
srmr_mplus	0.092	0.095	0.104
srmr_mplus_nomean	0.094	0.097	0.102
cn_05	77.562	79.512	78.845
cn_01	80.927	82.892	82.130
gfi	0.868	0.864	0.861
agfi	0.830	0.832	0.835
pgfi	0.674	0.700	0.726
mfi	0.128	0.129	0.115
ecvi	8.174	8.053	8.158

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell1fit	461	18206	18630	1197.2			
model2fit	481	18184	18545	1215.5	24.085	20	0.2387

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
modell1fit	461	18206	18630	1197.2			
model3fit	501	18203	18500	1274.3	148.23	40	2.41e-14 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model2fit	481	18184	18545	1215.5			

```
model3fit 501 18203 18500 1274.3    209.78    20 < 2.2e-16 ***  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Additional Measures

Manipulation Check

English items

Please state for each statement the extent to which you agree or disagree:

- a. Robin targeted me as a unique individual
- b. Robin personalized the conversation based on my personal information
- c. Robin used the information about my sleeping behavior to personalize the conversation

CFA

Model 1 (configural model): CFA with 3 correlated waves, with covarying residuals for the same items at T1, T2 and T3, but no equality constraints imposed

lavaan 0.6-3 ended normally after 57 iterations

Optimization method	NLMINB	
Number of free parameters	39	
Number of equality constraints	2	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	38.118	32.339
Degrees of freedom	17	17
P-value (Chi-square)	0.002	0.014
Scaling correction factor for the Satorra-Bentler correction		1.179

Model test baseline model:

Minimum Function Test Statistic	1420.306	1117.418
Degrees of freedom	36	36
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.985	0.986
Tucker-Lewis Index (TLI)	0.968	0.970
Robust Comparative Fit Index (CFI)		0.987
Robust Tucker-Lewis Index (TLI)		0.972

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2276.521	-2276.521
Loglikelihood unrestricted model (H1)	-2257.462	-2257.462

Number of free parameters	37	37
Akaike (AIC)	4627.042	4627.042
Bayesian (BIC)	4744.975	4744.975
Sample-size adjusted Bayesian (BIC)	4627.798	4627.798

Root Mean Square Error of Approximation:

RMSEA	0.083	0.071
90 Percent Confidence Interval	0.048 0.119	0.035 0.105
P-value RMSEA <= 0.05	0.060	0.147
Robust RMSEA		0.077
90 Percent Confidence Interval		0.034 0.117

Standardized Root Mean Square Residual:

SRMR	0.047	0.047
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
mancheck_t1 =~						
mancheck_t1_1	1.000				1.142	0.776
mancheck_t1_2	1.086	0.103	10.542	0.000	1.240	0.831
mancheck_t1_3	1.091	0.092	11.843	0.000	1.246	0.871
mancheck_t2 =~						
mancheck_t3_1	1.000				1.151	0.797
mancheck_t3_2	1.217	0.096	12.621	0.000	1.401	0.928
mancheck_t3_3	1.200	0.087	13.751	0.000	1.382	0.891
mancheck_t3 =~						
mancheck_t5_1	1.000				1.304	0.854
mancheck_t5_2	1.200	0.064	18.806	0.000	1.565	0.956
mancheck_t5_3	1.230	0.061	20.192	0.000	1.604	0.940

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.mancheck_t1_1 ~~						
.mancheck_t3_1	0.244	0.081	3.007	0.003	0.244	0.301
.mancheck_t5_1	0.326	0.089	3.662	0.000	0.326	0.440
.mancheck_t3_1 ~~						
.mancheck_t5_1	0.314	0.091	3.463	0.001	0.314	0.453
.mancheck_t1_2 ~~						
.mancheck_t3_2	-0.050	0.058	-0.852	0.394	-0.050	-0.106
.mancheck_t5_2	-0.137	0.068	-2.002	0.045	-0.137	-0.340
.mancheck_t3_2 ~~						
.mancheck_t5_2	-0.061	0.065	-0.943	0.346	-0.061	-0.223
.mancheck_t1_3 ~~						
.mancheck_t3_3	0.012	0.066	0.177	0.860	0.012	0.024
.mancheck_t5_3	0.007	0.059	0.119	0.905	0.007	0.017

.mancheck_t3_3 ~~						
.mancheck_t5_3	0.135	0.066	2.043	0.041	0.135	0.330
mancheck_t1 ~~						
mancheck_t2	0.772	0.164	4.713	0.000	0.587	0.587
mancheck_t3	0.731	0.151	4.839	0.000	0.491	0.491
mancheck_t2 ~~						
mancheck_t3	1.132	0.182	6.230	0.000	0.754	0.754

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.mnch_1_1 (it1)	4.226	0.094	44.868	0.000	4.226	2.869
.mnch_1_2	4.276	0.108	39.604	0.000	4.276	2.864
.mnch_1_3	4.432	0.103	42.920	0.000	4.432	3.098
.mnch_3_1 (it1)	4.226	0.094	44.868	0.000	4.226	2.927
.mnch_3_2	4.285	0.107	40.005	0.000	4.285	2.837
.mnch_3_3	4.407	0.110	40.108	0.000	4.407	2.841
.mnch_5_1 (it1)	4.226	0.094	44.868	0.000	4.226	2.766
.mnch_5_2	4.153	0.108	38.479	0.000	4.153	2.536
.mnch_5_3	4.219	0.110	38.379	0.000	4.219	2.473
mnchck_1	0.000				0.000	0.000
mnchck_2	0.000				0.000	0.000
mnchck_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.mancheck_t1_1	0.864	0.139	6.205	0.000	0.864	0.399
.mancheck_t1_2	0.690	0.171	4.045	0.000	0.690	0.310
.mancheck_t1_3	0.494	0.107	4.616	0.000	0.494	0.241
.mancheck_t3_1	0.759	0.111	6.834	0.000	0.759	0.364
.mancheck_t3_2	0.318	0.105	3.025	0.002	0.318	0.139
.mancheck_t3_3	0.497	0.106	4.697	0.000	0.497	0.206
.mancheck_t5_1	0.633	0.107	5.933	0.000	0.633	0.271
.mancheck_t5_2	0.233	0.074	3.160	0.002	0.233	0.087
.mancheck_t5_3	0.338	0.066	5.118	0.000	0.338	0.116
mancheck_t1	1.305	0.212	6.140	0.000	1.000	1.000
mancheck_t2	1.326	0.229	5.790	0.000	1.000	1.000
mancheck_t3	1.701	0.218	7.816	0.000	1.000	1.000

	mancheck_t1	mancheck_t2	mancheck_t3	total
alpha	0.8702912	0.9030532	0.9379899	0.9196814
omega	0.8653679	0.9077113	0.9432035	0.9439358
omega2	0.8653679	0.9077113	0.9432035	0.9439358
omega3	0.8487977	0.9104802	0.9595602	0.9335912
avevar	0.6821229	0.7676059	0.8480158	0.7717089

Model 2 (weak invariance): CFA with constrained factor loadings and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 55 iterations

Optimization method	NLMINB
Number of free parameters	39
Number of equality constraints	6

Number of observations	179		
Estimator	ML	Robust	
Model Fit Test Statistic	40.370	35.896	
Degrees of freedom	21	21	
P-value (Chi-square)	0.007	0.022	
Scaling correction factor for the Satorra-Bentler correction		1.125	

Model test baseline model:

Minimum Function Test Statistic	1420.306	1117.418	
Degrees of freedom	36	36	
P-value	0.000	0.000	

User model versus baseline model:

Comparative Fit Index (CFI)	0.986	0.986	
Tucker-Lewis Index (TLI)	0.976	0.976	
Robust Comparative Fit Index (CFI)		0.988	
Robust Tucker-Lewis Index (TLI)		0.979	

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2277.647	-2277.647	
Loglikelihood unrestricted model (H1)	-2257.462	-2257.462	
Number of free parameters	33	33	
Akaike (AIC)	4621.294	4621.294	
Bayesian (BIC)	4726.478	4726.478	
Sample-size adjusted Bayesian (BIC)	4621.969	4621.969	

Root Mean Square Error of Approximation:

RMSEA		0.072	0.063	
90 Percent Confidence Interval	0.037	0.105	0.027	0.095
P-value RMSEA <= 0.05		0.134	0.240	
Robust RMSEA			0.067	
90 Percent Confidence Interval			0.025	0.103

Standardized Root Mean Square Residual:

SRMR	0.050	0.050	
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
mancheck_t1 ==						
mnchc_1_1	1.000				1.065	0.744
mnchc_1_2 (a1)	1.186	0.059	20.231	0.000	1.263	0.837
mnchc_1_3 (a2)	1.199	0.057	20.857	0.000	1.276	0.880
mancheck_t2 ==						
mnchc_3_1	1.000				1.162	0.801
mnchc_3_2 (a1)	1.186	0.059	20.231	0.000	1.379	0.923
mnchc_3_3 (a2)	1.199	0.057	20.857	0.000	1.393	0.894
mancheck_t3 ==						
mnchc_5_1	1.000				1.324	0.857
mnchc_5_2 (a1)	1.186	0.059	20.231	0.000	1.570	0.956
mnchc_5_3 (a2)	1.199	0.057	20.857	0.000	1.586	0.938

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.mancheck_t1_1 ~~						
.mancheck_t3_1	0.255	0.080	3.171	0.002	0.255	0.307
.mancheck_t5_1	0.330	0.087	3.783	0.000	0.330	0.435
.mancheck_t3_1 ~~						
.mancheck_t5_1	0.312	0.092	3.393	0.001	0.312	0.453
.mancheck_t1_2 ~~						
.mancheck_t3_2	-0.049	0.057	-0.865	0.387	-0.049	-0.104
.mancheck_t5_2	-0.137	0.069	-1.980	0.048	-0.137	-0.345
.mancheck_t3_2 ~~						
.mancheck_t5_2	-0.058	0.063	-0.917	0.359	-0.058	-0.208
.mancheck_t1_3 ~~						
.mancheck_t3_3	0.017	0.066	0.256	0.798	0.017	0.035
.mancheck_t5_3	0.011	0.061	0.177	0.860	0.011	0.027
.mancheck_t3_3 ~~						
.mancheck_t5_3	0.131	0.065	2.010	0.044	0.131	0.320
mancheck_t1 ~~						
mancheck_t2	0.725	0.147	4.918	0.000	0.586	0.586
mancheck_t3	0.694	0.146	4.764	0.000	0.492	0.492
mancheck_t2 ~~						
mancheck_t3	1.162	0.176	6.618	0.000	0.755	0.755

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.mnch_1_1 (it1)	4.234	0.094	44.863	0.000	4.234	2.960
.mnch_1_2	4.285	0.108	39.754	0.000	4.285	2.839
.mnch_1_3	4.441	0.103	43.055	0.000	4.441	3.064
.mnch_3_1 (it1)	4.234	0.094	44.863	0.000	4.234	2.918
.mnch_3_2	4.294	0.107	40.074	0.000	4.294	2.873
.mnch_3_3	4.417	0.110	40.193	0.000	4.417	2.833
.mnch_5_1 (it1)	4.234	0.094	44.863	0.000	4.234	2.743
.mnch_5_2	4.162	0.108	38.551	0.000	4.162	2.534
.mnch_5_3	4.225	0.110	38.523	0.000	4.225	2.499
mnchck_1	0.000				0.000	0.000
mnchck_2	0.000				0.000	0.000
mnchck_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
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.mancheck_t1_1	0.913	0.127	7.197	0.000	0.913	0.446
.mancheck_t1_2	0.683	0.154	4.424	0.000	0.683	0.300
.mancheck_t1_3	0.472	0.100	4.738	0.000	0.472	0.225
.mancheck_t3_1	0.754	0.108	6.961	0.000	0.754	0.358
.mancheck_t3_2	0.332	0.089	3.727	0.000	0.332	0.149
.mancheck_t3_3	0.490	0.103	4.775	0.000	0.490	0.202
.mancheck_t5_1	0.632	0.109	5.791	0.000	0.632	0.265
.mancheck_t5_2	0.231	0.073	3.144	0.002	0.231	0.086
.mancheck_t5_3	0.342	0.066	5.191	0.000	0.342	0.120
mancheck_t1	1.133	0.165	6.884	0.000	1.000	1.000
mancheck_t2	1.351	0.191	7.059	0.000	1.000	1.000
mancheck_t3	1.752	0.219	7.988	0.000	1.000	1.000

	mancheck_t1	mancheck_t2	mancheck_t3	total
alpha	0.8702912	0.9030532	0.9379899	0.9196814
omega	0.8626187	0.9076123	0.9433790	0.9432903
omega2	0.8626187	0.9076123	0.9433790	0.9432903
omega3	0.8373853	0.9105243	0.9624231	0.9317776
avevar	0.6781025	0.7672193	0.8482500	0.7705606

Model 3 (strong invariance): CFA with constrained factor loadings, intercepts, and covarying residuals for the same items at T1, T2 and T3

lavaan 0.6-3 ended normally after 47 iterations

Optimization method	NLMINB	
Number of free parameters	39	
Number of equality constraints	10	
Number of observations	179	
Estimator	ML	Robust
Model Fit Test Statistic	48.331	44.008
Degrees of freedom	25	25
P-value (Chi-square)	0.003	0.011
Scaling correction factor		1.098
for the Satorra-Bentler correction		

Model test baseline model:

Minimum Function Test Statistic	1420.306	1117.418
Degrees of freedom	36	36
P-value	0.000	0.000

User model versus baseline model:

Comparative Fit Index (CFI)	0.983	0.982
Tucker-Lewis Index (TLI)	0.976	0.975
Robust Comparative Fit Index (CFI)		0.985
Robust Tucker-Lewis Index (TLI)		0.978

Loglikelihood and Information Criteria:

Loglikelihood user model (H0)	-2281.628	-2281.628
Loglikelihood unrestricted model (H1)	-2257.462	-2257.462
Number of free parameters	29	29
Akaike (AIC)	4621.255	4621.255
Bayesian (BIC)	4713.690	4713.690
Sample-size adjusted Bayesian (BIC)	4621.848	4621.848

Root Mean Square Error of Approximation:

RMSEA		0.072	0.065
90 Percent Confidence Interval	0.041	0.103	0.033 0.095
P-value RMSEA <= 0.05		0.112	0.192
Robust RMSEA			0.068
90 Percent Confidence Interval			0.033 0.101

Standardized Root Mean Square Residual:

SRMR	0.062	0.062
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Parameter Estimates:

Information	Expected
Information saturated (h1) model	Structured
Standard Errors	Robust.sem

Latent Variables:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
mancheck_t1 =~						
mnhc_1_1	1.000				1.058	0.742
mnhc_1_2 (a1)	1.195	0.058	20.480	0.000	1.264	0.837
mnhc_1_3 (a2)	1.211	0.057	21.079	0.000	1.281	0.881
mancheck_t2 =~						
mnhc_3_1	1.000				1.154	0.799
mnhc_3_2 (a1)	1.195	0.058	20.480	0.000	1.379	0.923
mnhc_3_3 (a2)	1.211	0.057	21.079	0.000	1.398	0.894
mancheck_t3 =~						
mnhc_5_1	1.000				1.328	0.859
mnhc_5_2 (a1)	1.195	0.058	20.480	0.000	1.587	0.957
mnhc_5_3 (a2)	1.211	0.057	21.079	0.000	1.609	0.939

Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.mancheck_t1_1 ~~						
.mancheck_t3_1	0.252	0.080	3.140	0.002	0.252	0.304
.mancheck_t5_1	0.336	0.087	3.864	0.000	0.336	0.444
.mancheck_t3_1 ~~						
.mancheck_t5_1	0.318	0.091	3.479	0.001	0.318	0.463
.mancheck_t1_2 ~~						
.mancheck_t3_2	-0.048	0.057	-0.846	0.397	-0.048	-0.102
.mancheck_t5_2	-0.135	0.069	-1.950	0.051	-0.135	-0.340
.mancheck_t3_2 ~~						

.mancheck_t5_2	-0.057	0.063	-0.906	0.365	-0.057	-0.205
.mancheck_t1_3 ~~						
.mancheck_t3_3	0.021	0.066	0.315	0.753	0.021	0.043
.mancheck_t5_3	0.005	0.061	0.076	0.940	0.005	0.011
.mancheck_t3_3 ~~						
.mancheck_t5_3	0.128	0.065	1.955	0.051	0.128	0.310
mancheck_t1 ~~						
mancheck_t2	0.714	0.145	4.915	0.000	0.585	0.585
mancheck_t3	0.673	0.143	4.708	0.000	0.479	0.479
mancheck_t2 ~~						
mancheck_t3	1.141	0.173	6.602	0.000	0.744	0.744

Intercepts:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.mnch_1_1 (it1)	4.261	0.094	45.481	0.000	4.261	2.989
.mnch_1_2 (it2)	4.269	0.090	47.181	0.000	4.269	2.827
.mnch_1_3 (it3)	4.379	0.092	47.691	0.000	4.379	3.010
.mnch_3_1 (it1)	4.261	0.094	45.481	0.000	4.261	2.951
.mnch_3_2 (it2)	4.269	0.090	47.181	0.000	4.269	2.857
.mnch_3_3 (it3)	4.379	0.092	47.691	0.000	4.379	2.801
.mnch_5_1 (it1)	4.261	0.094	45.481	0.000	4.261	2.757
.mnch_5_2 (it2)	4.269	0.090	47.181	0.000	4.269	2.574
.mnch_5_3 (it3)	4.379	0.092	47.691	0.000	4.379	2.557
mnchck_1	0.000				0.000	0.000
mnchck_2	0.000				0.000	0.000
mnchck_3	0.000				0.000	0.000

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.mancheck_t1_1	0.913	0.126	7.230	0.000	0.913	0.450
.mancheck_t1_2	0.683	0.155	4.413	0.000	0.683	0.299
.mancheck_t1_3	0.475	0.100	4.741	0.000	0.475	0.224
.mancheck_t3_1	0.753	0.107	7.011	0.000	0.753	0.361
.mancheck_t3_2	0.331	0.089	3.732	0.000	0.331	0.148
.mancheck_t3_3	0.489	0.103	4.762	0.000	0.489	0.200
.mancheck_t5_1	0.626	0.108	5.776	0.000	0.626	0.262
.mancheck_t5_2	0.231	0.074	3.130	0.002	0.231	0.084
.mancheck_t5_3	0.346	0.066	5.215	0.000	0.346	0.118
mancheck_t1	1.118	0.162	6.903	0.000	1.000	1.000
mancheck_t2	1.332	0.189	7.054	0.000	1.000	1.000
mancheck_t3	1.764	0.218	8.099	0.000	1.000	1.000

	mancheck_t1	mancheck_t2	mancheck_t3	total
alpha	0.8702912	0.9030532	0.9379899	0.9196814
omega	0.8623841	0.9075934	0.9444994	0.9431405
omega2	0.8623841	0.9075934	0.9444994	0.9431405
omega3	0.8367870	0.9090609	0.9813826	0.9307371
avevar	0.6778150	0.7672971	0.8510392	0.7720421

Compare the three models

	model1	model2	model3
npar	37.000	33.000	29.000

fmin	0.106	0.113	0.135
chisq	38.118	40.370	48.331
df	17.000	21.000	25.000
pvalue	0.002	0.007	0.003
chisq.scaled	32.339	35.896	44.008
df.scaled	17.000	21.000	25.000
pvalue.scaled	0.014	0.022	0.011
chisq.scaling.factor	1.179	1.125	1.098
baseline.chisq	1420.306	1420.306	1420.306
baseline.df	36.000	36.000	36.000
baseline.pvalue	0.000	0.000	0.000
baseline.chisq.scaled	1117.418	1117.418	1117.418
baseline.df.scaled	36.000	36.000	36.000
baseline.pvalue.scaled	0.000	0.000	0.000
baseline.chisq.scaling.factor	1.271	1.271	1.271
cfi	0.985	0.986	0.983
tli	0.968	0.976	0.976
mnfi	0.968	0.976	0.976
rfi	0.943	0.951	0.951
nfi	0.973	0.972	0.966
pnfi	0.460	0.567	0.671
ifi	0.985	0.986	0.983
rni	0.985	0.986	0.983
cfi.scaled	0.986	0.986	0.982
tli.scaled	0.970	0.976	0.975
cfi.robust	0.987	0.988	0.985
tli.robust	0.972	0.979	0.978
mnfi.scaled	0.970	0.976	0.975
mnfi.robust	0.972	0.979	0.978
rfi.scaled	0.939	0.945	0.943
nfi.scaled	0.971	0.968	0.961
ifi.scaled	0.986	0.986	0.983
rni.scaled	0.986	0.986	0.982
rni.robust	0.987	0.988	0.985
logl	-2276.521	-2277.647	-2281.628
unrestricted.logl	-2257.462	-2257.462	-2257.462
aic	4627.042	4621.294	4621.255
bic	4744.975	4726.478	4713.690
ntotal	179.000	179.000	179.000
bic2	4627.798	4621.969	4621.848
rmsea	0.083	0.072	0.072
rmsea.ci.lower	0.048	0.037	0.041
rmsea.ci.upper	0.119	0.105	0.103
rmsea.pvalue	0.060	0.134	0.112
rmsea.scaled	0.071	0.063	0.065
rmsea.ci.lower.scaled	0.035	0.027	0.033
rmsea.ci.upper.scaled	0.105	0.095	0.095
rmsea.pvalue.scaled	0.147	0.240	0.192
rmsea.robust	0.077	0.067	0.068
rmsea.ci.lower.robust	0.034	0.025	0.033
rmsea.ci.upper.robust	0.117	0.103	0.101
rmsea.pvalue.robust	NA	NA	NA
rnr	0.092	0.099	0.119
rnr_nomean	0.085	0.094	0.103

srmr	0.047	0.050	0.062
srmr_bentler	0.047	0.050	0.062
srmr_bentler_nomean	0.038	0.042	0.046
crmr	0.047	0.050	0.062
crmr_nomean	0.041	0.040	0.042
srmr_mplus	0.043	0.049	0.059
srmr_mplus_nomean	0.037	0.040	0.043
cn_05	130.547	145.861	140.449
cn_01	157.885	173.625	165.121
gfi	0.989	0.988	0.986
agfi	0.964	0.970	0.970
pgfi	0.311	0.384	0.456
mfi	0.943	0.947	0.937
ecvi	0.626	0.594	0.594

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model1fit	17	4627.0	4745.0	38.118			
model2fit	21	4621.3	4726.5	40.370	2.5169	4	0.6416

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model1fit	17	4627.0	4745.0	38.118			
model3fit	25	4621.3	4713.7	48.331	11.015	8	0.2008

Scaled Chi Square Difference Test (method = "satorra.bentler.2001")

	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
model2fit	21	4621.3	4726.5	40.370			
model3fit	25	4621.3	4713.7	48.331	8.2959	4	0.08132 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1