Supplemental Table 5

Confirmatory Factor Analysis Models and Fit Indices in the NNN Sample

WAIS models (N = 1911) [models numbered based on WAIS technical manual]

10 subtest scores: [SI, VC, IN], [BD, MR, VP], [DS, AR], [SS, CD]

	χ^2	df	CFI	TLI	RMSEA [CI]	SRMR	BIC
1. One-factor	691.63	35	.876	.840	.099 [.093, .106]	.069	52513.5
2. One second-order and two first-order factors	503.55	34	.911	.883	.085 [.079, .092]	.060	52333.0
3. One second-order and three first-order factors	227.60	32	.963	.948	.057 [.050, .064]	.045	52072.2
4. One second-order and four first-order factors	86.24	31	.990	.985	.031 [.023, .038]	.034	51938.4
6. Four correlated first-order factors	71.84	29	.992	.987	.028 [.020, .036]	.030	51939.1

Wechsler Terms	CHC theory terms	Indicators	
Verbal Comprehension	(Gc)	SI, VC, IN	Verbal
Perceptual Reasoning	(Gv / Gf)	BD, MR, VP	Performance
Working Memory	(Gsm)	DS, AR	Verbal
Processing Speed	(Gs)	SS, CD	Performance

Model 1: General intelligence

Model 2: General intelligence + (Verbal and Performance)

Model 3: General intelligence + (Verbal Comprehension, Perceptual Reasoning, and Working Memory/Proc. Speed??)

Model 4: General intelligence + (Verbal Comp, Percep. Reasoning, Working Memory, Processing Speed)

Model 6: Four correlated first-order factors (cf. Model 4)

Red ink: Optimal model with higher-order g factor

Blue ink: Optimal model with correlated first-order factors (without g factor)

Supplemental Table 5

Confirmatory Factor Analysis Models and Fit Indices in the NNN Sample

CVLT models (N = 657) [models based on Donders, 2008]

13 manifest variables [list A trial 1, list B, recall middle], [list A trial 5, semantic clust., recall consis.], [short-delay free, short-delay cued, long-delay free, long-delay cued, long-delay fc recog hits], [intrusions, total recog discrimin d']

	χ^2	df	CFI	TLI	RMSEA [CI]	SRMR	BIC
1. One-factor	654.53	65	.915	.898	.117 [.109, .126]	.051	37615.9
2. Two-factor	577.27	64	.926	.909	.110 [.102, .119]	.045	37545.2
3. Three-factor	431.54	60	.946	.930	.097 [.082, .099]	.042	37425.4
4. Four-factor	299.84	56	.965	.951	.081 [.072, .091]	.037	37319.7
5. Model 4, but with a general factor	303.08	58	.965	.952	.080 [.071, .089]	.037	37309.9

Model 1: General Memory factor

Model 2: Accurate Memory (11 indicators), Inaccurate Memory (2 indicators)

Model 3: Immediate Memory (6 indicators, Delayed Memory (5 indicators), Inaccurate Memory (2 indicators)

Model 4: Attention Span (3 indicators), Learning Efficiency (3 indicators), Delayed Memory (5), Inaccurate Memory (2)

ML function minimum, F_{ml}, multiplied by (N – 1) yields the chi-square value. So, for Donders (2008), we get the following:

    Young   (n = 357)   chi-square of 140.02 implies F_{ml} = 140.02 / 356 = 0.3933

    Middle   (n = 331)   chi-square of 132.35 implies F_{ml} = 132.35 / 330 = 0.4011

    Old   (n = 388)   chi-square of 187.45 implies F_{ml} = 187.45 / 387 = 0.4844

In our sample, with a rather larger sample size, we get

    NNN   (n = 657)   chi-square of 299.84 implies F_{ml} = 299.84 / 656 = 0.4571

    so our CVLT 4-factor model fits about as well as those in Donders (2008).

Red ink: Optimal model with higher-order g factor

Blue ink: Optimal model with correlated first-order factors (without g factor)

Supplemental Table 5

Confirmatory Factor Analysis Models and Fit Indices in the NNN Sample

WMS models (*N* = 1635)

9 manifest variables

	χ^2	df	CFI	TLI	RMSEA [CI]	SRMR	BIC
1. One-factor	1178.45	27	.798	.718	.162 [.154, .169]	.147	43318.2
2. One second-order, two first-order factors	528.19	26	.908	.872	.109 [.101, .117]	.140	42675.3
3. One 2nd-order, three 1st-order w 2 uniq covs	243.71	24	.960	.940	.075 [.066, .083]	.117	42405.6
4. One 2nd order, 3 1st-order, plus correlated Recogniation factor, w 2 uniq cov	51.64	18	.994	.988	.034 [.023, .045]	.028	42258.0
5. Four 1st order correlated factors w 2 uniq cov	46.55	16	.994	.987	.034 [.023, .046]	.027	42267.7

Model 1: General Memory

Model 2: General Memory + (Visual and Auditory first-order factors)

Model 3: General Memory + (Visual, Logical Memory, & Paired Associates first-order factors), plus 2 covariances between unique factors

Model 4: General Memory + (Visual, Logical Memory, & Paired Associates first-order factors), plus 2 covariances between unique factors, but adding Recognition factor correlated with the General Memory factor

Model 5: Visual, Logical Memory, Paired Associates, and Recognition correlated first-order factors, plus 2 covariances between unique factors

Red ink: Optimal model with higher-order g factor

Blue ink: Optimal model with correlated first-order factors (without g factor)

Supplemental Table 5

Confirmatory Factor Analysis Models and Fit Indices in the NNN Sample

DKEFS models (N = 535)

12 manifest variables: [cw_cn, cw_in, cw_isw, cw_wr],[tm_ls, tm_ms, tm_nls, tm_ns, tm_vs],[vf_scf, vf_scs, vf_slf]

	χ^2	df	CFI	TLI	RMSEA [CI]	SRMR	BIC
1. One-factor	340.91	54	.829	.791	.100 [.090, .110]	.100	15454.06
2. General factor plus three first-order factors	107.81	50	.965	.954	.046 [.034, .059]	.059	15246.10
3. General factor plus four first-order factors	54.37	45	.994	.992	.020 [.000, .037]	.041	15224.07
4. Three correlated first-order factors	107.81	50	.965	.954	.046 [.034, .059]	.059	15246.10
5. Four correlated first-order factors	53.49	43	.994	.990	.021 [.000, .038]	.040	15235.75

Model 1: General Exec Functioning (?)

Model 2: General Exec. Functioning + (Color Word Interference, Trail Making, Fluency)

Model 3: General Exec. Functioning + (Color Word Interference, Trail Making, Fluency, Inhibition/Switching)

Model 4: Color Word Interference, Trail Making, Fluency

Model 5: Color Word Interference, Trail Making, Fluency, Inhibition/Switching (same as Model 3, except no General factor)

Red ink: Optimal model with higher-order g factor

Blue ink: Optimal model with correlated first-order factors (without g factor)