Online Supplement

Investigating the Theoretical Structure of the DAS-II Core Battery at School Age using Bayesian Structural Equation Modeling

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Table A1

Two Factor Bifactor BSEM with Cross-Loadings and Small Variance (.01) Priors.

	General							
	g		Verbal		Nonverbal			
	b	S^2	*b*	S^2	*b*	S^2		
Subtest	[95% CI]		[95% CI]		[95% CI]		h^2	u^2
Word Definitions	**.652**	**.425**	**.476**	**.227**	.000	.000	.652	.348
	[.613	**.691]**	**[.423**	**.521]**	[-.05	.051]		
Verbal Similarities	**.659**	**.434**	**.476**	**.227**	.002	.000	.661	.339
	[.620	**.698]**	**[.423**	**.521]**	[-.048	.053]		
Matrices	**.763**	**.582**	.004	.000	**.016**	**.000**	.587	.413
	[.730	**.799]**	[-.056	.059]	**[-.107**	**.152]**		
Sequential & Quantitative	**.825**	**.681**	.007	.000	**-.053**	**.003**	.690	.310
	[.787	**.869]**	[-.053	.064]	**[-.242**	**.207]**		
Pattern Construction	**.715**	**.511**	-.021	.000	**.225**	**.051**	.572	.428
	[.651	**.758]**	[-.069	.030]	**[-.028**	**.564]**		
Recall of Designs	**.646**	**.417**	.031	.000	**.353**	**.125**	.546	.454
	[.582	**.710]**	[-.044	.066]	**[-.048**	**.053]**		
ECV*		.823		.122		.048	.993	
Total Variance		.508		.076		.030	.614	.386
ω_H / ω_{HS}		.838		.274		.039		
H		.872		.369		.166		
PUC		.533						

Note. *b* = standardized loading of subtest on factor, S^2 = variance explained in the subtest, h^2 = communality, u^2 = uniqueness, ECV = explained common variance, ω_H = Omega-hierarchical (general factor), ω_{HS} = Omega-hierarchical subscale (group factors). BSEM=Bayesian Structural Equation Modeling, CI=Confidence Interval, *g* = general intelligence. *Does not total to 100% due to use of median parameter estimates. Loadings in bold were freely estimated. Other loadings were estimated with small (0.01) variance priors.

Table A2

Two Factor Bifactor BSEM (MA & SQ on g only) with Cross-Loadings and Small Variance (.01) Priors.

	General							
	G		Verbal		Spatial			
	b	S^2	*b*	S^2	*b*	S^2		
Subtest	[95% CI]		[95% CI]		[95% CI]		h^2	u^2
Word Definitions	**.661**	**.437**	**.469**	**.220**	.003	.000	.653	.347
	[.571	**.723]**	**[.356**	**.567]**	[-.126	.126]		
Verbal Similarities	**.654**	**.428**	**.469**	**.220**	.008	.000	.662	.338
	[.577	**.730]**	**[.356**	**.567]**	[-.120	.130]		
Matrices	**.761**	**.579**	.003	.000	.036	.001	.601	.399
	[.714	**.821]**	[-.130	.133]	[-.145	.181]		
Sequential & Quantitative	**.630**	**.397**	.005	.000	-.025	.001	.671	.329
	[.773	**.901]**	[-.143	.143]	[-.210	.120]		
Pattern Construction	**.708**	**.501**	-.025	.001	**.314**	**.099**	.604	.396
	[.646	**.761]**	[-.141	.096]	**[.182**	**.419]**		
Recall of Designs	**.630**	**.397**	.035	.001	**.314**	**.099**	.501	.499
	[.567	**.681]**	[-.074	.150]	**[.183**	**.419]**		
							.615	.385
ECV*		.742		.120		.054	.915*	
Total Variance		.456		.074		.033		
ω_H / ω_{HS}		.808		.266		.128		
H		.839		.361		.179		
PUC		.800						

Note. *b* = standardized loading of subtest on factor, S^2 = variance explained in the subtest, h^2 = communality, u^2 = uniqueness, ECV = explained common variance, ω_H = Omega-hierarchical (general factor), ω_{HS} = Omega-hierarchical subscale (group factors). BSEM=Bayesian Structural Equation Modeling, CI=Confidence Interval, MA=Matrices, SQ= Sequential & Quantitative Reasoning, *g* = general intelligence. *Does not total to 100% due to use of median parameter estimates. Loadings in bold were freely estimated. Other loadings were estimated with small (0.01) variance priors.

Table A3 Three Factor Oblique with Informative Cross Loadings and Correlated Residuals (.001)

Loading estimates (median)	Verbal		Nonverbal		Spatial			
	b	S^2	*b*	S^2	*b*	S^2		
Subtest	[95% CI]		[95% CI]		[95% CI]		h^2	u^2
Word Definitions	**.878**	**.771**	-.003	.000	-.005	.000	.766	.234
	[.672	**1.103]**	[.637	1.102]	[.614	1.092]		
Verbal Similarities	**.863**	**.745**	.011	.000	.003	.000	.763	.237
	[.604	**1.052]**	[.584	1.054]	[.493	1.025]		
Matrices	-.008	.000	**.880**	**.774**	-.006	.000	.764	.236
	[-.199	.157]	**[-.193**	**.158]**	[-.184	.152]		
Sequential & Quantitative	.018	.000	**.837**	**.701**	.017	.000	.748	.252
	[-.167	.196]	**[-.167**	**.183]**	[-.160	.163]		
Pattern Construction	-.004	.000	.005	.000	**.873**	**.762**	.771	.229
	[-.201	.164]	[-.161	.175]	**[-.180**	**.166]**		
Recall of Designs	.009	.000	.008	.000	**.791**	**.626**	.652	.348
	[-.167	.178]	[-.169	.181]	**[-.150**	**.194]**		
ECV*		.340		.330		.311	.981	
Total Variance		.253		.246		.231	.730	.270
Factor Intercorrelations								
Verbal	*1*							
Nonverbal	*0.671*		1					
Spatial	*0.585*		.705		1			

Note. *b* = standardized loading of subtest on factor, S^2 = variance explained in the subtest, h^2 = communality, u^2 = uniqueness, ECV = explained common variance, CI=Confidence Interval. *Does not total to 100% due to use of median parameter estimates. Loadings in bold were freely estimated. Other loadings were estimated with small (0.001) variance priors.

Table A4 Two factor Higher Order with Cross-loadings and Correlated Residuals (.001) 250K Iterations

Loading estimates (median)	General* *g*		Verbal		Residualized Verbal		Nonverbal		Residualized Nonverbal			
	b	S^2	*b*	S^2	*b*	S^2	*b*	S^2	*b*	S^2		
Subtest	[95% CI]		[95% CI]				[95% CI]				h^2	u^2
Word Definitions	**.723**	**.523**	**.870**	**.757**	*.487*	*.237*	.000	.000			.760	.240
			[.740	**.878]**			[-.046	.048]				
Verbal Similarities	**.726**	**.528**	**.874**	**.764**	*.489*	*.239*	.000	.000			.767	.233
			[.742	**.885]**			[-.047	.050]				
Matrices	**.648**	**.420**	.000	.000			**.804**	**.646**	*.478*	*.228*	.648	.352
			[-.052	.038]			**[.705**	**.841]**				
Sequential & Quantitative	**.662**	**.438**	.000	.000			**.821**	**.674**	*.492*	*.242*	.680	.320
			[-.030	.062]			**[.739**	**.875]**				
Pattern Construction	**.623**	**.388**	.001	.000			**.773**	**.598**	*.459*	*.211*	.599	.401
			[-.066	.022]			**[-.048**	**.047]**				
Recall of Designs	**.596**	**.355**	.004	.000			**.739**	**.546**	*.437*	*.191*	.546	.454
			[-.029	.060]			**[-.047**	**.049]**				
ECV		.663				.119				.218	1.00	
Total Variance		.442				.079				.145	.667	.333
ω_H / ω_{HS}**		.711				.270				.305		
H		.830				.385				.528		
PUC		.533										
Second Order Loadings (median)												
Verbal	**.831**											
	[.649	**.992]**										
Nonverbal	**.806**											
	[.648	**.991]**										

Note. *b* = standardized loading of subtest on factor, S^2 = variance explained in the subtest, h^2 = communality, u^2 = uniqueness, ECV = explained common variance, ω_H = Omega-hierarchical (general factor), ω_{HS} = Omega-hierarchical subscale (group factors), *g* = general intelligence. Omega estimates based on residualized group factor loadings. Loadings in bold were freely estimated. Other loadings were estimated with small (0.001) variance priors. Residualized using the following formula: $\sqrt{R^2 - (g\ loading)^2}$ *Calculated using the path tracing rules. **Used residualized estimates to calculate omega.