Online Supplemental Materials/Tables

Online Cognitive Assessment in the Era of COVID-19: Examining the Validity of the MEZURE

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Psychological Assessment

Table A1

MEZURE Exploratory Factor Analysis: Principal Axis Factoring with Promax Rotation of the Standardization Sample

	General[1]	Memory/Perceptual Reasoning (Gwm/PR)		Crystalized Ability (Gc)			
MEZURE Subtest	*S*	*P*	*S*	*P*	*S*	h^2	u^2
Auditory Memory	.693	**.729**	.707	-.053	.241	.503	.497
Visual Memory	.688	**.706**	.698	-.018	.266	.488	.512
Visual Analogies	.696	**.654**	.691	.092	.356	.484	.516
Visual Closure	.470	**.481**	.477	-.009	.185	.227	.773
Information	.236	-.022	.189	**.484**	.480	.226	.774
Vocabulary	.252	-.006	.173	**.483**	.475	.231	.769
Categorization	.252	.148	.228	.197	.257	.084	.916
Eigenvalue		2.42		1.16			
% Variance		34.61		16.57			

Note. [1]Factor structure coefficients from first unrotated factor (*g* loadings) are correlations between the subtest and the general factor. *S* = Structure Coefficient, *P* = Pattern Coefficient, h^2 = Communality, u^2=Uniqueness. Salient pattern coefficients presented in bold (pattern coefficient ≥ .30). Correlation between Gwm/PR and Gc=.403. PR=Perceptual Reasoning, PR=Combination of Gf/Gv. Gf=Fluid Reasoning, Gv=Visual-Spatial, Gc=Crystalized Ability, Gwm=Working Memory.

Table A2

MEZURE Principal Components Analysis with Oblimin Rotation of the Standardization Sample: Replication of the Test Publisher's Promoted Solution

	General[1]	Memory/Perceptual Reasoning (Gwm/PR)		Verbal Ability (Gc)			
MEZURE Subtest	*S*	*P*	*S*	*P*	*S*	h^2	u^2
Auditory Memory	.754	**.795**	.789	-.022	.181	.623	.337
Visual Memory	.754	**.777**	.780	.011	.210	.608	.392
Visual Analogies	.769	**.740**	.768	.112	.301	.602	.398
Visual Closure	.598	**.655**	.638	-.063	.104	.411	.589
Information	.315	-.076	.119	**.764**	.745	.560	.440
Vocabulary	.334	-.051	.142	**.752**	.739	.548	.452
Categorization	.357	.150	.257	**.418**	.456	.229	.771
Eigenvalue		2.42		1.16			
% Variance		34.61		16.57			

Note. [1]Component structure coefficients from first unrotated factor (*g* loadings). PCA was used in the past to approximate g loadings as hand calculating principal axis factor analysis was arduous. Subsequent to the advent of the microcomputer there is really no reason to use PCA to determine general and specific factors if defined the way Carroll and Spearman intended them to be defined. *S* = Structure Coefficient, *P* = Pattern Coefficient, h^2 = Communality, u^2=Uniqueness. Salient pattern coefficients presented in bold (pattern coefficient ≥ .30). Correlation between Gf and Gc=.256. PR=Perceptual Reasoning, PR=Combination of Gf/Gv. Gf=Fluid Reasoning, Gv=Visual-Spatial, Gc=Crystalized Ability, Gwm=Working Memory.

Table A3
MEZURE Sources of Variance EBFA with Three Factor Extraction (1 general + 2 group)

	General		?		Gc			
	b	S^2	b	S^2	b	S^2	h^2	u^2
Auditory Memory	.71	.50	.02	.00	.02	.00	.50	.50
Visual Memory	.70	.49	.03	.00	.01	.00	.49	.51
Visual Analogies	.69	.47	.04	.00	.10	.01	.48	.52
Visual Closure	.48	.23	.02	.00	.00	.00	.23	.77
Information	.16	.03	.02	.00	**.45**	**.20**	.23	.77
Vocabulary	.18	.03	.01	.00	**.45**	**.20**	.23	.77
Categorization	.22	.05	**.35**	.12	.17	.03	.20	.80
SUM		1.797	.14	.12		.44	2.362	4.638
							.34	.66
ECV		.76		.05		.19	1.00	
Total Variance		.26		.02		.06	.34	.66
□h/□hs		.64		.01		.33		
H		.77		.03		.34		
FDI		.88		.18		.58		
PUC		.48						

Note: Principal axis factoring with a bigeomin rotation with a communality start value of .20. *b* = standardized loading of subtest on factor, S^2 = variance explained, h^2 = communality, u^2 = uniqueness, ω_H = Omega-hierarchical (general factor), ω_{HS} = Omega-hierarchical subscale (group factors), H = construct reliability or replicability index, FDI=factor determinancy index, PUC = percentage of uncontaminated correlations. Gc=Crystalized Ability

Table A4
MEZURE Sources of Variance: Exploratory Bifactor Analysis (g + 1 group factor)

	General		Gc			
	b	S^2	b	S^2	h^2	u^2
Visual Memory	.70	.49	.01	.00	.49	.51
Visual Analogies	.69	.47	.11	.01	.48	.52
Auditory Memory	.71	.50	.02	.00	.50	.50
Visual Closure	.48	.23	.01	.00	.23	.77
Vocabulary	.17	.03	**.45**	**.20**	.23	.77
Information	.16	.02	**.45**	**.21**	.23	.77
Categorization	.22	.05	.19	.04	.08	.92
Total Variance		.26		.06	.32	.68
ECV		.80		.20	1.00	
$\square_{h/}\square_{hs}$		.62		.30		
H		.77		.35		
FDI		.88		.59		
PUC		.57				

Note. *b* = standardized loading of subtest on factor, S^2 = variance explained, h^2 = communality, u^2 = uniqueness, ω_H = Omega-hierarchical (general factor), ω_{HS} = Omega-hierarchical subscale (group factors), H = construct reliability or replicability index, FDI=factor determinancy index, PUC = percentage of uncontaminated correlations. Gc=Crystallized Ability.