

Supplementary Material

Supplementary Table S1 Post Hoc Comparisons of sex-related differences in PPVT, EVT and RAN

Gender		Prior Odds	Posterior Odds	BF _{10, U}	error %
			a. PPVT		
Male	Female	1.000	0.830	0.830	0.010
			b. EVT		
Male	Female	1.000	0.265	0.265	0.011
			c. RAN		
Male	Female	1.000	0.265	0.265	0.011

Note. The posterior odds have been corrected for multiple testing by fixing the prior probability to 0.5 that the null hypothesis holds across all comparisons. Individual comparisons are based on the default t-test with a Cauchy (0, $r = 1/\sqrt{2}$) prior. The "U" in the Bayes factor denotes that it is uncorrected.

Supplementary Table S2 Bayesian Pearson Correlations (5-6 group)

Variable		RCPM	AS	VS	AVS	EHC	PPVT	EVT	RAN
1. RCPM	Pearson's r	—							
	BF ₁₀	—							
2. AS	Pearson's r	0.078	—						
	BF ₁₀	0.312	—						
3. VS	Pearson's r	0.102	0.540	—					
	BF ₁₀	0.321	3.033	—					
4. AVS	Pearson's r	0.195	0.849 ***	0.580	—				
	BF ₁₀	0.389	1469.533	4.702	—				
5. EHC	Pearson's r	-0.434	0.201	0.061	0.375	—			
	BF ₁₀	1.219	0.395	0.307	0.829	—			
6. PPVT	Pearson's r	0.207	0.184	-0.046	0.329	0.112	—		
	BF ₁₀	0.403	0.378	0.304	0.649	0.326	—		
7. EVT	Pearson's r	0.445	-0.284	-0.219	-0.208	-0.486	0.647 *	—	
	BF ₁₀	1.323	0.528	0.417	0.403	1.837	11.312	—	
8. RAN	Pearson's r	0.014	0.128	0.054	0.235	0.639 *	-0.002	-0.371	—
	BF ₁₀	0.300	0.335	0.306	0.438	10.120	0.300	0.812	—

Note. Age = age in numbers; RCPM = nonverbal IQ of Raven; AS = MRTs of auditory stimuli; VS = MRTs of visual stimuli; AVS = MRTs of audiovisual stimuli; EHC = SLURP visual motor skills; PPVT= Peabody picture vocabulary test; EVT= expressive vocabulary test; RAN = rapid automatized task. * BF₁₀ > 10, ** BF₁₀ > 30, *** BF₁₀ > 100.*

Supplementary Table S3 Bayesian Pearson Correlations (7-8 group)

Variable		RCPM	AS	VS	AVS	EHC	PPVT	EVT	RAN
1. RCPM	Pearson's r	—							
	BF ₁₀	—							
2. AS	Pearson's r	-0.212	—						
	BF ₁₀	0.404	—						
3. VS	Pearson's r	-0.458	0.745 ***	—					
	BF ₁₀	1.904	205.786	—					
4. AVS	Pearson's r	-0.514	0.751 ***	0.856 ***	—				
	BF ₁₀	3.425	240.997	12791.937	—				
5. EHC	Pearson's r	0.137	-0.098	-0.169	-0.148	—			
	BF ₁₀	0.323	0.300	0.351	0.332	—			
6. PPVT	Pearson's r	0.479	-0.213	-0.306	-0.373	-0.159	—		
	BF ₁₀	2.348	0.405	0.621	0.945	0.342	—		
7. EVT	Pearson's r	0.622 *	-0.236	-0.358	-0.420	0.145	0.660 *	—	
	BF ₁₀	15.206	0.444	0.850	1.362	0.329	29.668	—	
8. RAN	Pearson's r	-0.078	0.210	0.026	0.052	0.052	-0.206	-0.206	—
	BF ₁₀	0.291	0.401	0.278	0.283	0.283	0.395	0.394	—

Note. Age = age in numbers; RCPM = nonverbal IQ of Raven; AS = MRTs of auditory stimuli; VS = MRTs of visual stimuli; AVS = MRTs of audiovisual stimuli; EHC = SLURP visual motor skills; PPVT= Peabody picture vocabulary test; EVT= expressive vocabulary test; RAN = rapid automatized task. * BF₁₀ > 10, ** BF₁₀ > 30, *** BF₁₀ > 100.

Supplementary Table S4 Bayesian Pearson Correlations (9-10 group)

Variable		RCPM	AS	VS	AVS	EHC	PPVT	EVT	RAN
1. RCPM	Pearson's r	—							
	BF ₁₀	—							
2. AS	Pearson's r	-0.403	—						
	BF ₁₀	2.154	—						
3. VS	Pearson's r	-0.588 **	0.877 ***	—					
	BF ₁₀	48.664	2.286e+7	—					
4. AVS	Pearson's r	-0.505	0.771 ***	0.862 ***	—				
	BF ₁₀	9.439	19724.413	6.425e+6	—				
5. EHC	Pearson's r	-0.452	0.538	0.437	0.401	—			
	BF ₁₀	2.589	8.147	2.170	1.507	—			
6. PPVT	Pearson's r	0.357	-0.092	-0.192	-	-	—		
	BF ₁₀	0.968	0.281	0.372	0.182	0.355	—		
7. EVT	Pearson's r	0.572	-0.679 **	-0.570	-	-	0.695 **	—	
	BF ₁₀	7.038	42.875	6.902	0.557	0.540	60.628	—	
8. RAN	Pearson's r	-0.341	0.327	0.346	0.337	0.378	-0.198	-	—
	BF ₁₀	1.012	0.895	1.058	0.973	1.216	0.382	0.396	—

Note. Age = age in numbers; RCPM = nonverbal IQ of Raven; AS = MRTs of auditory stimuli; VS = MRTs of visual stimuli; AVS = MRTs of audiovisual stimuli; EHC= Slurp visual motor skills; PPVT= Peabody picture vocabulary test; EVT= expressive vocabulary test; RAN = rapid automatized task. * BF₁₀ > 10, ** BF₁₀ > 30, *** BF₁₀ > 100.

Supplementary Table S5 Bayesian Multiple Regressions for Age, Nonverbal IQ and Multisensory MRT (Auditory, visual, and audiovisual), EHC SLURP and RAN Predict Receptive and Expressive Vocabulary Tests

Model predictors	P(M)	P(M data)	BF _M	BF ₁₀	R ²
a. PPVT					
Age + RCPM	0.008	0.137	20.236	1.000	0.476
Age	0.008	0.098	13.844	0.715	0.430
RCPM	0.008	0.047	6.252	0.341	0.412
Age + RCPM + AVS	0.008	0.043	5.676	0.311	0.483
Age + IQ + AS	0.008	0.041	5.453	0.300	0.483
Age + RCPM + EHC SLURP	0.008	0.036	4.714	0.260	0.479
Age + RCPM + RAN	0.008	0.033	4.320	0.239	0.477
Age + RCPM + VS	0.008	0.032	4.140	0.230	0.476
RCPM + VS	0.008	0.027	3.589	0.200	0.438
Age + AS	0.008	0.027	3.564	0.199	0.438
b. EVT					
RCPM + AS	0.008	0.095	13.316	1.000	0.665
Age + RCPM	0.008	0.080	10.991	0.839	0.662
Age + RCPM + AS	0.008	0.075	10.250	0.787	0.688
RCPM + AS + RAN	0.008	0.053	7.160	0.562	0.683
RCPM + AVS	0.008	0.053	7.042	0.554	0.656
RCPM + VS	0.008	0.038	5.070	0.405	0.651
Age + RCPM + AVS	0.008	0.037	4.897	0.391	0.678
RCPM + AVS + RAN	0.008	0.035	4.612	0.369	0.677
Age + RCPM + VS	0.008	0.030	3.994	0.321	0.675
Age + RCPM + RAN	0.008	0.030	3.942	0.317	0.675

Note. Age = age in numbers; RCPM = nonverbal IQ of Raven; AS = MRTs of auditory stimuli; VS = MRTs of visual stimuli; AVS = MRTs of audiovisual stimuli; EHC= Slurp visual motor skills; PPVT= Peabody picture vocabulary test; EVT= expressive vocabulary test; RAN= rapid automatized task. .

Supplementary Table S6 Posterior Summaries of Regression Coefficients

Coefficient	P(incl)	P(incl data)	BF _{inclusion}	Mean	SD	95% Credible Interval	
						Lower	Upper
<i>a. PPVT</i>							
Intercept	1.000	1.000	1.000	138.113	2.370	133.871	143.015
Agenumbers	0.500	0.804	4.095	5.660	3.849	-0.067	11.791
RCPM	0.500	0.685	2.175	0.982	0.884	0.000	2.575
AS	0.500	0.241	0.318	0.003	0.013	-0.005	0.050
VS	0.500	0.263	0.358	-0.006	0.019	-0.055	0.027
AVS	0.500	0.254	0.341	0.005	0.020	-0.024	0.069
EHC SLURP	0.500	0.219	0.280	0.009	0.074	-0.134	0.195
RAN	0.500	0.209	0.264	0.006	0.118	-0.238	0.358
<i>b. EVT</i>							
Intercept	1.000	1.000	1.000	100.373	1.519	97.448	103.568
Agenumbers	0.500	0.456	0.840	1.595	2.229	-0.367	6.091
RCPM	0.500	0.985	64.072	1.535	0.459	0.729	2.552
AS	0.500	0.470	0.886	-0.013	0.017	-0.050	0.000
VS	0.500	0.287	0.402	-0.007	0.017	-0.056	1.646e-4
AVS	0.500	0.304	0.436	-0.008	0.018	-0.061	0.000
EHC SLURP	0.500	0.207	0.261	-0.016	0.058	-0.238	1.731e-4
RAN	0.500	0.338	0.511	-0.079	0.145	-0.458	0.030

Note. Age = age in numbers; RCPM = nonverbal IQ of Raven; AS = MRTs of auditory stimuli; VS = MRTs of visual stimuli; AVS = MRTs of audiovisual stimuli; EHC= Slurp visual motor skills; PPVT= Peabody picture vocabulary test; EVT= expressive vocabulary test; RAN = rapid automatized task.

Supplementary Table S7 Bayesian Multiple Regressions for Age, Nonverbal IQ, PPVT, EVT and Rapid Automatized Naming (RAN) Predict Multisensory MRT (Auditory, visual, and audiovisual) and EHC SLURP

Model predictors	P(M)	P(M data)	BF _M	BF ₁₀	R ²
a. AS					
PPVT + EVT + Age	0.031	0.273	11.633	1.000	0.453
Age	0.031	0.123	4.366	0.452	0.361
EVT + Age	0.031	0.100	3.449	0.367	0.395
PPVT + EVT + Age + RCPM	0.031	0.098	3.364	0.359	0.460
PPVT + EVT + RAN + Age	0.031	0.077	2.600	0.284	0.454
EVT	0.031	0.038	1.234	0.140	0.330
PPVT + EVT	0.031	0.034	1.082	0.124	0.367
PPVT + EVT + RAN + Age + RCPM	0.031	0.032	1.030	0.118	0.461
PPVT + Age	0.031	0.032	1.017	0.116	0.366
EVT + Age + RCPM	0.031	0.031	1.002	0.115	0.400
b. VS					
Age + RCPM	0.031	0.195	7.494	1.000	0.532
Age	0.031	0.194	7.479	0.998	0.497
EVT + Age	0.031	0.164	6.075	0.842	0.528
EVT + Age + RCPM	0.031	0.080	2.684	0.409	0.545
EVT + RAN + Age	0.031	0.048	1.579	0.249	0.536
RAN + Age + RCPM	0.031	0.044	1.415	0.224	0.534
PPVT + Age	0.031	0.042	1.352	0.215	0.502
PPVT + Age + RCPM	0.031	0.041	1.338	0.213	0.533
PPVT + EVT + Age	0.031	0.038	1.229	0.196	0.531
RAN + Age	0.031	0.038	1.223	0.195	0.500
c. AVS					
Age	0.031	0.263	11.089	1.000	0.482
PPVT + EVT + Age	0.031	0.134	4.793	0.508	0.535
EVT + Age	0.031	0.126	4.483	0.480	0.503
Age + RCPM	0.031	0.103	3.566	0.392	0.498
PPVT + Age	0.031	0.051	1.660	0.193	0.484
RAN + Age	0.031	0.050	1.616	0.188	0.483
PPVT + EVT + RAN + Age	0.031	0.049	1.591	0.185	0.543
PPVT + EVT + Age + RCPM	0.031	0.042	1.375	0.161	0.541
EVT + Age + RCPM	0.031	0.037	1.193	0.141	0.509
EVT + RAN + Age	0.031	0.033	1.073	0.127	0.507
d. EHC					
Age	0.031	0.349	16.624	1.000	0.418
RAN + Age	0.031	0.149	5.439	0.428	0.438
EVT + Age	0.031	0.085	2.879	0.243	0.423
Age + RCPM	0.031	0.077	2.569	0.219	0.420
PPVT + Age	0.031	0.072	2.410	0.207	0.419
EVT + RAN + Age	0.031	0.040	1.306	0.116	0.440
RAN + Age + RCPM	0.031	0.040	1.301	0.115	0.440
PPVT + RAN + Age	0.031	0.038	1.219	0.108	0.438
PPVT + EVT + Age	0.031	0.028	0.905	0.081	0.430
EVT + Age + RCPM	0.031	0.022	0.697	0.063	0.423

Note. Age = age in numbers; RCPM = nonverbal IQ of Raven; AS = MRTs of auditory stimuli; VS = MRTs of visual stimuli; AVS = MRTs of audiovisual stimuli; EHC= Slurp visual motor skills; PPVT= Peabody picture vocabulary test; EVT= expressive vocabulary test; RAN = rapid automatized task.

Supplementary Table S8 Posterior Summaries of Regression Coefficients

Coefficient	P(incl)	P(incl data)	BF _{inclusion}	Mean	SD	95% Credible Interval	
						Lower	Upper
a. AS							
Intercept	1.000	1.000	1.000	870.743	16.020	841.710	903.974
PPVT	0.500	0.589	1.433	1.369	1.501	-0.077	4.411
EVT	0.500	0.763	3.220	-3.182	2.432	-7.387	0.000
RAN	0.500	0.218	0.278	-0.008	0.844	-2.143	2.341
Age	0.500	0.883	7.523	-39.859	21.397	-71.086	0.000
RCPM	0.500	0.240	0.316	0.447	2.194	-2.407	7.833
b. VS							
Intercept	1.000	1.000	1.000	904.920	12.908	880.460	932.501
PPVT	0.500	0.191	0.237	-0.003	0.430	-1.335	0.754
EVT	0.500	0.421	0.728	-0.830	1.273	-3.933	0.003
RAN	0.500	0.202	0.253	-0.182	0.743	-2.210	0.909
Age	0.500	0.972	34.109	-46.625	16.314	-82.156	-14.930
RCPM	0.500	0.444	0.797	-2.390	3.438	-10.786	0.035
c. AVS							
Intercept	1.000	1.000	1.000	824.625	12.366	799.090	846.770
PPVT	0.500	0.345	0.526	0.446	0.859	-0.146	2.540
EVT	0.500	0.459	0.849	-1.034	1.478	-4.104	0.304
RAN	0.500	0.204	0.257	-0.166	0.706	-2.238	0.385
Age	0.500	0.989	88.537	-48.664	13.753	-73.538	-23.345
RCPM	0.500	0.276	0.382	-0.919	2.213	-7.728	0.726
d. EHC							
Intercept	1.000	1.000	1.000	67.373	2.070	63.472	72.073
PPVT	0.500	0.205	0.259	0.009	0.063	-0.101	0.195
EVT	0.500	0.231	0.300	-0.030	0.111	-0.386	0.133
RAN	0.500	0.327	0.485	0.087	0.177	-0.051	0.517
Age	0.500	0.973	36.159	-6.671	2.123	-11.555	-2.638
RCPM	0.500	0.214	0.271	-0.055	0.295	-1.002	0.402

Note. Age = age in numbers; RCPM = nonverbal IQ of Raven; AS = MRTs of auditory stimuli; VS = MRTs of visual stimuli; AVS = MRTs of audiovisual stimuli; EHC= Slurp visual motor skills; PPVT= Peabody picture vocabulary test; EVT= expressive vocabulary test; RAN = rapid automatized task.