

SUPPLEMENTARY FILE PRESENTING MODEL CODES AND FULL STANDARDIZED SOLUTIONS FOR THE MAIN MODELS PRESENTED IN THE PAPER.

All Confirmatory Factor Analysis and Structural Equation Models were tested by EQS 6.1. Latent transition models were tested by Mplus 7.31. Thus, the model codes below must be read in conjunction with the language specification of each of these two programs.

The correlations and statistics of the variables used in the various models are presented in Supplementary Tables. Below only variables used in the model concerned are mentioned.

STUDY 1

Model 1: Model for specifying the correlation between g and the GFP at first testing wave.

```
/VARIABLES
V4=MATRICES1; V7=DEDUCTIVE1; V13=SCIENTIFIC1;
V19=P1; V20=N1; V21=E1; V22=L1;
```

```
F1=GF1; F4=GFP1; F7=P; F8=N; F9=E; F10=L;
```

```
/EQUATIONS
V4= 1F1+E4;
V7= *F1+E7;
V13= *F1+E13;
```

```
V27= F4+E27;
V28= *F4+E28;
V29= *F4+E29;
V83= *F4+E83;
```

```
/VAR
F1=*;
F4=*
```

All error variances were free to be estimated.

```
/COV
F1, F4=*
```

```
/END
```

STANDARDIZED SOLUTION:

R-SQUARED

MAT1	=V4	=	.752 F1	+	.659 E4	.566
DED1	=V7	=	.615*F1	+	.788 E7	.378
SCI1	=V13	=	.723*F1	+	.691 E13	.522
P1	=V27	=	.494 F4	+	.870 E27	.244
N1	=V28	=	.528*F4	+	.849 E28	.279
E1	=V29	=	-.002*F4	+	1.000 E29	.000
L1I	=V83	=	1.000*F4	+	.000 E83	1.000

CORRELATIONS AMONG INDEPENDENT VARIABLES

I	F4	-	GFP1	.590*I
I	F1	-	GF1	I
I				I

GOODNESS OF FIT SUMMARY FOR METHOD = ML

MODEL AIC = 12.540 MODEL CAIC = -46.749
 CHI-SQUARE = 38.540 BASED ON 13 DEGREES OF FREEDOM
 PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS .00024
 COMPARATIVE FIT INDEX (CFI) = .940
 STANDARDIZED RMR = .062
 ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA) = .087
 90% CONFIDENCE INTERVAL OF RMSEA (.056, .119)

RELIABILITY COEFFICIENTS

 CRONBACH'S ALPHA = .668
 RELIABILITY COEFFICIENT RHO = .777

Model 2: Growth model for Gf at the three testing waves; personality factors at first wave were used as factors influencing the intercept and slope of Gf growth factors.

/VARIABLES

V77=MGF_Z1; V78=MGF_Z2; V79=MGF_Z3;
 V27=Z_P1; V28=Z_N1; V29=Z_E1; V30=Z_L1;

F1=INTER_GF;
 F2=SLOPE_GF;

F9=E;
 F10=L
 F11=P;
 F12=N;

/EQUATIONS

V77= 1F1+0F2+E77;
 V78= 1F1+1F2+E78;
 V79= 1F1+2F2+E79;

V27= F11+E27;
 V28= F12+E28;
 V29= F9+E29;
 V30= F10+E30;

F1=0*V999+*d9+*d11+*d12+*f10+D1;
 F2=0*V999+*d9+*d11+*d12+*f10+D2;

F11=*F10+D11;
 F12=*F10+D12;
 F9= *F10+D9;

```

/VAR
V999=1;

F10=*;

E77 TO E79=*;
E27 to E28 =.2;
D1 TO D2=*;
D9=*;
D11 to D12=*;

/COV
E29,E27=*;
/END

```

STANDARDIZED SOLUTION:						R-SQUARED	
Z_P1	=V27	=	.885 F11	+	.465 E27	.784	
Z_N1	=V28	=	.894 F12	+	.447 E28	.800	
Z_E1	=V29	=	.895 F9	+	.445 E29	.802	
Z_L1	=V30	=	.895 F10	+	.447 E30	.801	
MGF_Z1	=V77	=	.887 F1	+	.461 E77	.787	
MGF_Z2	=V78	=	.899 F1	+	.293 F2 + .509 E78	.741	
MGF_Z3	=V79	=	.956 F1	+	.624 F2 + .212 E79	.955	
INTER_GF=F1	=	.000*V999	-	.678*F10	+	.640 D1 - .036*D9	
			-	.288*D11	-	.216*D12	.591
SLOPE_GF=F2	=	.000*V999	+	.266*F10	+	.900 D2 + .185*D9	
			+	.244*D11	+	.163*D12	.190
E	=F9	=	.029*F10	+	1.000 D9		.001
P	=F11	=	-.598*F10	+	.802 D11		.357
N	=F12	=	-.643*F10	+	.766 D12		.414

GOODNESS OF FIT SUMMARY FOR METHOD = ML

MODEL AIC =	-7.286	MODEL CAIC =	-61.921
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CHI-SQUARE = 16.714 BASED ON 12 DEGREES OF FREEDOM
 PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS .16067

FIT INDICES (BASED ON COVARIANCE MATRIX ONLY, NOT THE MEANS)

COMPARATIVE FIT INDEX (CFI)	=	.997
ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA)	=	.073
90% CONFIDENCE INTERVAL OF RMSEA (.026,	.119)

SATORRA-BENTLER SCALED CHI-SQUARE =	16.2722 ON	12 DEGREES OF FREEDOM
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS	.17908	
COMPARATIVE FIT INDEX (CFI)	=	.965
ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA)	=	.037
90% CONFIDENCE INTERVAL OF RMSEA (.000,	.078)

Latent Transition Analysis

Model 3: Personality Influences on Cognitive Transition

```

CATEGORICAL = Mat1 Mat2 Prop1 Prop2 Form2_1 Form2_2;
USEVARIABLES = Mat1 Mat2 Prop1 Prop2 Form2_1 Form2_2
P1 N1 E1 L1;

```

```

CLASSES = c1 (2) c2 (2);
ANALYSIS: TYPE = MIXTURE;
STARTS = 20 10;
MODEL: %OVERALL%
[c2#1] (a);
c2 ON c1 P1 E1 N1 L1 (b);
c1 ON P1 E1 N1 L1;

MODEL c1: %c1#1%
[Mat1$1 Prop1$1*-3 Scien_1$1] (1-3);
%c1#2%
[Mat1$1 Prop1$1*-3 Scien_1$1] (4-6);
MODEL c2: %c2#1%
[Mat2$1*-5 Prop2$1 Scien_2$1] (1-3);
%c2#2%
[Mat2$1*-5 Prop2$1 Scien_2$1] (4-6);

```

Model 4: Cognitive Influences on Personality Transition

```

CATEGORICAL = P1L N1L L1L P2L N2L L2L;
USEVARIABLES = P1L N1L L1L P2L N2L L2L
GF;

CLASSES = c1 (2) c2 (2);
DEFINE:
GF = (Mat1 + Prop1 + Form2_1)/3;
ANALYSIS: TYPE = MIXTURE;
STARTS = 100 20;
MODEL: %OVERALL%
[c2#1] (a);
c2 ON c1 (b);
c1 ON GF;

MODEL c1: %c1#1%
[P1L$1 N1L$1 L1L$1];
c2 ON GF;
%c1#2%
[P1L$1 N1L$1 L1L$1];
c2 ON GF;
MODEL c2: %c2#1%
[P2L$1 N2L$1 L2L$1];

%c2#2%
[P2L$1 N2L$1 L2L$1];

```

STUDY 2

Model 1: Model specifying the correlation between Gf at second testing wave and GFP

VARIABLES

F1=Gf2;
F2=GFP;

F20=SPEED2;
F21=ATCON2;
F22=WM2;
F23=RAV2;
F24=MATH2;
F151=STA-A;
F152=PLA-B;

/EQUATIONS

E = F152 + E268;
A = F151 + E269;
C = *F151 + E270;
N = *F151 + E271;
O = *F152 + E272;

Sp1_2 = *F20 + E64;
Sp2_2 = F20 + E62;

DAT1_2 = F21 + E77;
DAT2_2 = *F21 + E78;
SAT1_2 = *F21 + E80;

FDS_2 = *F22 + E29;
BDS_2 = F22 + E30;

RAV_A2 = *F23 + E47;
RAV_B2 = F23 + E48;
RAV_C2 = *F23 + E49;
RAV_D2 = *F23 + E50;
RAV_E2 = *F23 + E51;

ARI_2 = *F24 + E54;
PRO_2 = F24 + E56;
ALG_2 = *F24 + E57;

F20 = F1 + D20;
F21 = *F1 + D21;
F22 = *F1 + D22;
F23 = *F1 + D23;
F24 = *F1 + D24;

F151= *F2 + D151;
F152= F2 + D152;

/VARIANCES

F1 TO F2=*;

All error variances and factor disturbances were free to be estimated.

/COVARIANCES

F1, F2=*;

STANDARDIZED SOLUTION FOR THE MODEL ABOVE:

R-SQUARED

FDS_2	=V29	=	.810*	F22	+	.586	E29	.657
BDS_2	=V30	=	.851	F22	+	.526	E30	.724
RAV_A_2	=V47	=	.557*	F23	+	.831	E47	.310
RAV_B_2	=V48	=	.736	F23	+	.677	E48	.542
RAV_C_2	=V49	=	.882*	F23	+	.471	E49	.778
RAV_D_2	=V50	=	.861*	F23	+	.508	E50	.742
RAV_E_2	=V51	=	.829*	F23	+	.559	E51	.687
PROP_2	=V54	=	.801*	F24	+	.598	E54	.642
ARITH_2	=V56	=	.757	F24	+	.654	E56	.573
ALG_2	=V58	=	.915*	F24	+	.403	E57	.837
SP1_2	=V62	=	.779	F20	+	.627	E62	.607
SP2_2	=V64	=	.753*	F20	+	.658	E64	.567
DAT_LH2	=V77	=	.770	F21	+	.638	E77	.594
DAT_RH2	=V78	=	.980*	F21	+	.199	E78	.960
S_ATT2	=V80	=	.447*	F21	+	.895	E80	.200
E	=V268	=	.655	F152	+	.755	E268	.429
A	=V269	=	.484	F151	+	.875	E269	.235
C	=V270	=	.090*	F151	+	.996	E270	.008
N	=V271	=	.329*	F151	+	.944	E271	.108
O	=V272	=	.495*	F152	+	.869	E272	.245
SPEED2	=F20	=	.949	F1	+	.316	D20	.900
SELATT2	=F21	=	.856*	F1	+	.517	D21	.733
WM2	=F22	=	.809*	F1	+	.588	D22	.654
RAV2	=F23	=	.847*	F1	+	.532	D23	.717
MATH2	=F24	=	.953*	F1	+	.302	D24	.909
STA-A	=F151	=	1.000*	F2	+	.000	D151	1.000
PLA-B	=F152	=	1.000	F2	+	.000	D152	1.000

CORRELATIONS AMONG INDEPENDENT VARIABLES

V		F
---		---
	I F2 - Gf2	.347*I
	I F1 - GFP	I
	I	I

GOODNESS OF FIT SUMMARY FOR METHOD = ML

MODEL AIC =	278.280	MODEL CAIC =	-539.221
CHI-SQUARE =	600.280	BASED ON	161 DEGREES OF FREEDOM
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS	.00000		

COMPARATIVE FIT INDEX (CFI)	=	.908
ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA)	=	.079
90% CONFIDENCE INTERVAL OF RMSEA (.072,	.086)

RELIABILITY COEFFICIENTS

CRONBACH'S ALPHA	=	.651
RELIABILITY COEFFICIENT RHO	=	.816

Model 2: Mediation of α - and β - personality factors, standing for stability and plasticity, between processing and representational efficiency and first and second testing

VARIABLES

F10=SPEED1;
F11=SELATT1;
F20=speed2;
F21=SELATT2;

F12=WM1;
F22=WM2;

F13=RAV1;
F14=MATH1;

F23=RAV2;
F24=MATH2;

F151=STA-A;
F152=PLA-B;

F100=PrEf1;
F200=RIP1;
F300=PrEf2;
F400=RIP2;

/EQUATIONS

V63 = *F10 + E63;
V61 = F10 + E61;

V75 = *F11 + E75;
V76 = F11 + E76;
V79 = *F11 + E79;

V27 = *F12 + E27;
V28 = F12 + E28;

V41 = *F13 + E41;
V42 = F13 + E42;
V43 = *F13 + E43;
V44 = *F13 + E44;
V45 = *F13 + E45;

V53 = *F14 + E53;
V55 = F14 + E55;
V57 = *F14 + E57;

V268 = F152 + E268;
V269 = F151 + E269;
V270 = *F151 + E270;
V271 = *F151 + E271;
V272 = *F152 + E272;

V64 = *F20 + E64;

$V62 = F20 + E62;$
 $V77 = *F21 + E77;$
 $V78 = F21 + E78;$
 $V80 = *F21 + E80;$
 $V29 = *F22 + E29;$
 $V30 = F22 + E30;$
 $V47 = *F23 + E47;$
 $V48 = F23 + E48;$
 $V49 = *F23 + E49;$
 $V50 = *F23 + E50;$
 $V51 = *F23 + E51;$
 $V54 = *F24 + E54;$
 $V56 = F24 + E56;$
 $V58 = *F24 + E57;$
 $F10 = *F100 + D10;$
 $F11 = F100 + D11;$
 $F12 = *F200 + D12;$
 $F13 = *F200 + D13;$
 $F14 = F200 + D14;$
 $F20 = F300 + D20;$
 $F21 = *F300 + D21;$
 $F22 = *F400 + D22;$
 $F23 = F400 + D23;$
 $F24 = *F400 + D24;$
 $F151 = *F100 + *F200 + D151;$
 $F152 = *F100 + *F200 + D152;$
 $F300 = *F151 + *F152 + D300;$
 $F400 = *F151 + 0F152 + D400;$

STANDARDIZED SOLUTION:

R-SQUARED

FDS_1	=V27 =	.760*F12	+	.650 E27	.578
BDS_1	=V28 =	.836 F12	+	.549 E28	.698
FDS_2	=V29 =	.791*F22	+	.612 E29	.626
BDS_2	=V30 =	.812 F22	+	.584 E30	.659
RAV_A_1	=V41 =	.719*F13	+	.695 E41	.517
RAV_B_1	=V42 =	.770 F13	+	.638 E42	.593
RAV_C_1	=V43 =	.877*F13	+	.481 E43	.768
RAV_D_1	=V44 =	.849*F13	+	.528 E44	.721
RAV_E_1	=V45 =	.822*F13	+	.569 E45	.676
RAV_A_2	=V47 =	.553*F23	+	.833 E47	.305
RAV_B_2	=V48 =	.768 F23	+	.640 E48	.590
RAV_C_2	=V49 =	.882*F23	+	.472 E49	.777
RAV_D_2	=V50 =	.859*F23	+	.512 E50	.738
RAV_E_2	=V51 =	.808*F23	+	.590 E51	.652
PROP_1	=V53 =	.733*F14	+	.680 E53	.538
PROP_2	=V54 =	.697*F24	+	.717 E54	.486
ARITH_1	=V55 =	.756 F14	+	.655 E55	.571
ARITH_2	=V56 =	.755 F24	+	.656 E56	.569

ALG_1	=V57 =	.950*F14	+	.313 E57		.902
ALG_2	=V58 =	.947*F24	+	.321 E57		.897
SP1_1	=V61 =	.811 F10	+	.585 E61		.658
SP2_2	=V62 =	.812 F20	+	.584 E62		.659
SP2_1	=V63 =	.739*F10	+	.674 E63		.546
SP2_2	=V64 =	.791*F20	+	.611 E64		.626
DAT_LH1	=V75 =	.791*F11	+	.612 E75		.625
DAT_RH1	=V76 =	.968 F11	+	.250 E76		.937
DAT_LH2	=V77 =	.759*F21	+	.651 E77		.576
DAT_RH2	=V78 =	.969 F21	+	.246 E78		.939
S_ATT1	=V79 =	.512*F11	+	.859 E79		.262
S_ATT2	=V80 =	.439*F21	+	.898 E80		.193
E	=V268 =	.320 F152	+	.947 E268		.103
A	=V269 =	.134 F151	+	.991 E269		.018
C	=V270 =	-.232*F151	+	.973 E270		.054
N	=V271 =	.180*F151	+	.984 E271		.033
O	=V272 =	.084*F152	+	.996 E272		.007
SPEED1	=F10 =	.984*F100	+	.179 D10		.968
SELATT1	=F11 =	.956 F100	+	.294 D11		.914
WM1	=F12 =	.858*F200	+	.514 D12		.736
RAV1	=F13 =	.907*F200	+	.421 D13		.823
MATH1	=F14 =	.931 F200	+	.364 D14		.868
SPEED2	=F20 =	.948 F300	+	.320 D20		.898
SELATT2	=F21 =	.981*F300	+	.196 D21		.962
WM2	=F22 =	.864*F400	+	.503 D22		.747
RAV2	=F23 =	.918 F400	+	.397 D23		.843
MATH2	=F24 =	.934*F400	+	.358 D24		.872
STA-A	=F151=	.074*F100	+	.939*F200	+	.039 D151
PLA-B	=F152=	.929*F100	+	.087*F200	+	.017 D152
PREF2	=F300=	-.022*F151	+	.960*F152	+	.337 D300
RIP2	=F400=	1.000*F151	+	.006 D400		1.000

CORRELATIONS AMONG INDEPENDENT VARIABLES

V	F
---	---
I F200- RIP1	.800*I
I F100-PREF1	I
I	I

GOODNESS OF FIT SUMMARY FOR METHOD = ML

MODEL AIC = 751.868 MODEL CAIC = -2009.120

CHI-SQUARE = 1839.868 BASED ON 544 DEGREES OF FREEDOM
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS .00000

COMPARATIVE FIT INDEX (CFI) = .891
ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA) = .074
90% CONFIDENCE INTERVAL OF RMSEA (.070, .078)

RELIABILITY COEFFICIENTS

CRONBACH'S ALPHA = .826
RELIABILITY COEFFICIENT RHO = .845

Model 3: Mediation the Big Five personality factors, standing for stability and plasticity, between processing and representational efficiency and first and second testing

STANDARDIZED SOLUTION:

R-SQUARED

FDS_1	=V27 =	.765*F12	+	.644 E27	.585
BDS_1	=V28 =	.825 F12	+	.565 E28	.680
FDS_2	=V29 =	.803*F22	+	.597 E29	.644
BDS_2	=V30 =	.811 F22	+	.585 E30	.658
RAV_A_1	=V41 =	.724*F13	+	.690 E41	.524
RAV_B_1	=V42 =	.782 F13	+	.623 E42	.611
RAV_C_1	=V43 =	.882*F13	+	.471 E43	.778
RAV_D_1	=V44 =	.854*F13	+	.521 E44	.729
RAV_E_1	=V45 =	.795*F13	+	.607 E45	.631
RAV_A_2	=V47 =	.567*F23	+	.824 E47	.321
RAV_B_2	=V48 =	.787 F23	+	.617 E48	.619
RAV_C_2	=V49 =	.889*F23	+	.457 E49	.791
RAV_D_2	=V50 =	.869*F23	+	.494 E50	.756
RAV_E_2	=V51 =	.787*F23	+	.616 E51	.620
PROP_1	=V53 =	.711*F14	+	.703 E53	.506
PROP_2	=V54 =	.761*F24	+	.649 E54	.579
ARITH_1	=V55 =	.806 F14	+	.592 E55	.649
ARITH_2	=V56 =	.790 F24	+	.613 E56	.624
ALG_1	=V57 =	.899*F14	+	.438 E57	.809
ALG_1	=V58 =	.882*F24	+	.472 E58	.778
SP1_1	=V61 =	.804 F10	+	.594 E61	.647
SP2_2	=V62 =	.798 F20	+	.602 E62	.638
SP2_1	=V63 =	.724*F10	+	.689 E63	.525
SP2_2	=V64 =	.769*F20	+	.639 E64	.592
DAT_LH1	=V75 =	.780*F11	+	.626 E75	.608
DAT_RH1	=V76 =	.969 F11	+	.246 E76	.940
DAT_LH2	=V77 =	.755*F21	+	.656 E77	.570
DAT_RH2	=V78 =	.978 F21	+	.210 E78	.956
S_ATT1	=V79 =	.513*F11	+	.858 E79	.263
S_ATT2	=V80 =	.446*F21	+	.895 E80	.199
E	=V268=	.999 F701	+	.047 E268	.998

A	=V269=	.999	F702	+	.049	E269		.998		
C	=V270=	.999	F703	+	.044	E270		.998		
N	=V271=	.999	F704	+	.044	E271		.998		
O	=V272=	.998	F705	+	.057	E272		.997		
F10	=F10 =	.934*	F100	+	.358	D10		.872		
F11	=F11 =	.835	F100	+	.551	D11		.697		
F12	=F12 =	.847*	F200	+	.532	D12		.717		
F13	=F13 =	.837*	F200	+	.547	D13		.701		
F14	=F14 =	.962	F200	+	.274	D14		.925		
F20	=F20 =	.939	F300	+	.343	D20		.882		
F21	=F21 =	.935*	F300	+	.353	D21		.875		
F22	=F22 =	.856*	F400	+	.517	D22		.732		
F23	=F23 =	.875	F400	+	.485	D23		.765		
F24	=F24 =	1.000*	F400	+	.023	D24		.999		
RIP1	=F200=	1.000*	F100	+	.024	D200		.999		
PREF2	=F300=	.366	D300	-	.296*	D701	+	.366*D702		
		-	.256*	D703	+	.264*	D704	+	.714*D705	
RIP2	=F400=	.160	D400	-	.381*	D701	+	.333*D702		
		-	.264*	D703	+	.351*	D704	+	.725*D705	
E	=F701=	.527*	F100	+	.212*	D200	+	.823	D701	.322
A	=F702=	-.169*	F100	+	.322*	D200	+	.932	D702	.132
C	=F703=	-.023*	F100	+	.243*	D200	+	.970	D703	.059
N	=F704=	-.139*	F100	+	.161*	D200	+	.977	D704	.045
O	=F705=	-.058*	F100	+	.977*	D200	+	.207	D705	.957

GOODNESS OF FIT SUMMARY FOR METHOD = ML

CHI-SQUARE = 3657.281 BASED ON 568 DEGREES OF FREEDOM
 PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS .00000

FIT INDICES

COMPARATIVE FIT INDEX (CFI) = .996
 ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA) = .112
 90% CONFIDENCE INTERVAL OF RMSEA (.108, .115)

RELIABILITY COEFFICIENTS

 CRONBACH'S ALPHA = .837

Latent transition analysis examining the effect of personality factors in cognitive transition across the two testing waves.

Model 4: Personality influencing cognitive transition

```
CATEGORICAL = ar_cl1 ar_cl2 alg_cl1 alg_cl2 pro_cl1 pro_cl2 rav_cl1 rav_cl2;

USEVARIABLES = ar_cl1 ar_cl2
               alg_cl1 alg_cl2
               pro_cl1 pro_cl2
               rav_cl1 rav_cl2
               nstrincl bds_1
               A_PERS B_PERS;

CLASSES = c1 (2) c2 (2);

ANALYSIS: TYPE = MIXTURE;
STARTS = 100 50;
MODEL: %OVERALL%
[c2#1] (a);
c2 ON c1 (b);

c1 ON nstrincl bds_1 A_PERS B_PERS;

MODEL c1: %c1#1%
[ar_cl1$1 alg_cl1$1 pro_cl1$1 rav_cl1$1] (1-4);
c2 ON nstrincl bds_1 A_PERS B_PERS;
%c1#2%
[ar_cl1$1 alg_cl1$1 pro_cl1$1 rav_cl1$1] (5-8);
c2 ON nstrincl bds_1 A_PERS B_PERS;
MODEL c2: %c2#1%
[ar_cl2$1 alg_cl2$1 pro_cl2$1 rav_cl2$1] (1-4);

%c2#2%
[ar_cl2$1 alg_cl2$1 pro_cl2$1 rav_cl2$1] (5-8);
```

STUDY 3

Model 1: The model specifying relations between Gf, GFP, and EI after partialing out the effect of likeability.

VARIABLES

V347=LIKEABILITY;

F1=COGN;

F2=GFP;

F3=G;

F4=SCH;

F11=GF;

F12=COGN_SSS;

F13=COGN_S;

F14=SEA;

F41=GR;

F42=MATH;

F43=SCI;

F21=N;

F22=C;

F23=O;

F24=A;

F25=E;

F31=T_EI_SK-C;

F32=T_EI_STA;

F33=T_EI_SENS;

F34=A_EI_REC;

F35=A_EI_DEF;

F211=A_STA;

F212=B_PLA;

F311=EIt;

F312=EIa;

/EQU

V338= F11+E338;

V339=*F11+E339;

V340=*F11+E340;

V341=*F11+E341;

V342=*F11+E342;

V297= *V397+ F12+E297;

V299= *V397+ *F12+E299;

V300= *V397+ *F12+E300;

V302= *V397+ *F12+E302;

V305= *V397+ *F12+E305;

V41= *V397+ F13+E41;

V42= *V397+ *F13+E42;

V90= *V397+ *F13+E90;

V279= *V397+ *F14+E279;

V280= *V397+ F14+E280;
V282= *V397+ *F14+E282;
V283= *V397+ *F14+E283;

V310= *V397+ F22+E310;
V311= *V397+ *F22+E311;

V312= *V397+ F21+E312;
V313= *V397+ *F21+E313;

V314= *V397+ F25+E314;
V316= *V397+ *F25+E316;

V317= *V397+ F24+E317;
V318= *V397+ *F24+E318;

V320= *V397+ F23+E320;
V321= *V397+ *F23+E321;

V196= *V397+ F31+E196;
V197= *V397+ *F31+E197;
V199= *V397+ *F31+E199;
V200= *V397+ *F31+E200;

V194= *V397+ F32+E194;
V187= *V397+ *F32+E187;
V210= *V397+ *F32+E210;
V214= *V397+ *F32+E214;

V192= *V397+ F33+E192;
V198= *V397+ *F33+E198;
V204= *V397+ *F33+E204;
V205= *V397+ *F33+E205;

V369= F34+E369;
V370= *F34+E370;
V371= *F34+E371;
V372= *F34+E372;

V373= F35+E373;
V374= *F35+E374;
V375= *F35+E375;

F11 = *F3+D11;

F12 = F1+D12;
F13 =*F1+D13;
F14 =*F1+D14;

F21 =*F211+D21;
F22 =*F211+D22;
F23 =*F212+D23;
F24 = F211+D24;
F25 = F212+D25;

F31 =*F311+D31;
F32 =*F311+D32;
F33 = F311+D33;
F34 =*F312+D34;
F35 = F312+D35;

```
F211=*F2+D211;
F212= F2+D212;
```

```
F311=*F2+D311;
F312= F3+D312;
```

```
/VAR
```

```
F1 TO F3=*;
```

All error variances and factor disturbances were free to be estimated.

```
/COV
```

```
F1 TO F3=*;
```

```
/END
```

STANDARDIZED SOLUTION:				R-SQUARED	
SR1SELFR=V41 =	.414 F13	+	.334*V397	+.847 E41	.283
SR2SELFR=V42 =	.557*F13	+	.277*V397	+.783 E42	.387
SR50SELF=V90 =	.565*F13	+	.284*V397	+.775 E90	.400
EI8 =V187=	.598*F32	+	.071*V397	+.799 E187	.362
EI13 =V192=	.633 F33	+	.135*V397	+.762 E192	.419
EI15 =V194=	.762 F32	-	.003*V397	+.648 E194	.580
EI17 =V196=	.573 F31	+	.058*V397	+.817 E196	.332
EI18 =V197=	.623*F31	+	.136*V397	+.770 E197	.407
EI19 =V198=	.650*F33	+	.195*V397	+.734 E198	.461
EI20 =V199=	.613*F31	+	.069*V397	+.787 E199	.381
EI21 =V200=	.486*F31	+	.203*V397	+.850 E200	.277
EI25 =V204=	.712*F33	+	.180*V397	+.678 E204	.540
EI26 =V205=	.547*F33	+	.355*V397	+.758 E205	.426
EI31 =V210=	.584*F32	+	.073*V397	+.808 E210	.346
EI35 =V214=	.509*F32	+	.095*V397	+.855 E214	.269
SEA_F1 =V279=	.361*F14	-	.050*V397	+.931 E279	.133
SEA_SD1 =V280=	.462 F14	-	.178*V397	+.869 E280	.245
SEA_MT5 =V282=	.339*F14	-	.170*V397	+.925 E282	.144
SEA_S1 =V283=	.279*F14	-	.080*V397	+.957 E283	.084
SRMATH1 =V297=	.304 F12	+	.387*V397	+.871 E297	.242
SRSUP1 =V299=	.771*F12	+	.219*V397	+.598 E299	.642
SRSUP2 =V300=	.683*F12	+	.200*V397	+.702 E300	.507
SRSOC2 =V302=	.716*F12	+	.226*V397	+.661 E302	.563
SRSPOR =V305=	.301*F12	+	.466*V397	+.832 E305	.307
F2ACHIE =V310=	.645 F22	+	.234*V397	+.727 E310	.471
F2ORG =V311=	.953*F22	+	.179*V397	+.246 E311	.939
F1EMO =V312=	.485 F21	-	.065*V397	+.872 E312	.239
F1EGO =V313=	.998*F21	-	.063*V397	+.000 E313	1.000
F5PROS =V314=	.704 F25	+	.068*V397	+.707 E314	.500
F5EXT =V316=	.724*F25	+	.204*V397	+.659 E316	.566
F4HELP =V317=	.719 F24	+	.108*V397	+.687 E317	.528
F4AGR =V318=	.898*F24	+	.083*V397	+.431 E318	.814
F3INTE =V320=	.925 F23	+	.378*V397	+.042 E320	.998
F3OPEN =V321=	.476*F23	+	.186*V397	+.859 E321	.262
SPATIAL =V338=	.604 F11	+	.797 E338		.365
QUANT =V339=	.644*F11	+	.765 E339		.415
CAUSAL =V340=	.791*F11	+	.612 E340		.625
QUAL =V341=	.601*F11	+	.799 E341		.362
SOCIAL =V342=	.601*F11	+	.799 E342		.361
TCWL =V369=	.441 F34	+	.898 E369		.194
PEGD =V370=	.594*F34	+	.804 E370		.353

COMEM	=V371=	.773*F34	+	.635	E371	.597
STORY	=V372=	.523*F34	+	.852	E372	.274
FAC_JOY	=V373=	.444 F35	+	.896	E373	.197
FAC_GRIF	=V374=	.558*F35	+	.830	E374	.311
FAC_SURP	=V375=	.823*F35	+	.568	E375	.678
GF	=F11 =	.833*F3	+	.554	D11	.693
COGN_SSS	=F12 =	.994 F1	+	.112	D12	.987
COGN_S	=F13 =	.364*F1	+	.931	D13	.133
SEA	=F14 =	.808*F1	+	.589	D14	.654
N	=F21 =	.027*F211	+	1.000	D21	.001
C	=F22 =	.667*F211	+	.745	D22	.445
O	=F23 =	.589*F212	+	.808	D23	.347
A	=F24 =	.677 F211	+	.736	D24	.459
E	=F25 =	.509 F212	+	.861	D25	.259
T_EI_SR	=F31 =	.870*F311	+	.493	D31	.757
T_EI_STA	=F32 =	-.240*F311	+	.971	D32	.057
T_EI_Esis	=F33=	.706 F311	+	.709	D33	.498
A_EI_Spe	=F34 =	.934*F312	+	.358	D34	.872
A_EI_Det	=F35 =	.678 F312	+	.735	D35	.460
A_STA	=F211=	.920*F2	+	.393	D211	.846
B_PLA	=F212=	.995 F2	+	.097	D212	.991
EIt	=F311=	.671*F2	+	.741	D311	.451
EIa	=F312=	.994 F3	+	.105	D312	.989

CORRELATIONS AMONG INDEPENDENT VARIABLES

V	F
---	---
I F2 - GFP	.620*I
I F1 - E1	I
I	I
I F3 - G	.665*I
I F1 - E1	I
I	I
I F3 - G	.420*I
I F2 - GFP	I
I	I

GOODNESS OF FIT SUMMARY FOR METHOD = ML

MODEL AIC = 38.106 MODEL CAIC = -4602.386
 CHI-SQUARE = 2098.106 BASED ON 1030 DEGREES OF FREEDOM
 PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS .00000

COMPARATIVE FIT INDEX (CFI) = .992
 ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA) = .065
 90% CONFIDENCE INTERVAL OF RMSEA (.061, .069)

RELIABILITY COEFFICIENTS

CRONBACH'S ALPHA = .815

Model 2: Bottom-up mediation of cognizance between cognitive and personality factors.

STANDARDIZED SOLUTION:

R-SQUARED

SR1SELFR=V41 =	.234 F13	+	.972 E41	.055
SR2SELFR=V42 =	.392*F13	+	.920 E42	.154
SR50SELF=V90 =	.999*F13	+	.034 E90	.999

EI8	=V187=	.620*F32	+	.785	E187	.384			
EI13	=V192=	.657 F33	+	.753	E192	.432			
EI15	=V194=	.747 F32	+	.665	E194	.557			
EI17	=V196=	.614 F31	+	.790	E196	.377			
EI18	=V197=	.622*F31	+	.783	E197	.387			
EI19	=V198=	.650*F33	+	.760	E198	.423			
EI20	=V199=	.645*F31	+	.764	E199	.416			
EI21	=V200=	.480*F31	+	.877	E200	.231			
EI25	=V204=	.778*F33	+	.628	E204	.605			
EI26	=V205=	.606*F33	+	.796	E205	.367			
EI31	=V210=	.574*F32	+	.819	E210	.330			
EI35	=V214=	.500*F32	+	.866	E214	.250			
HAI_F1	=V279=	.407 F14	+	.914	E279	.165			
HAI_SD1	=V280=	.521*F14	+	.853	E280	.272			
HAI_MT5	=V282=	.352*F14	+	.936	E282	.124			
HAI_S1	=V283=	.281*F14	+	.960	E283	.079			
BOTTLE	=V285=	.738 F1	+	.674	E285	.545			
CAR	=V286=	.508*F1	+	.861	E286	.258			
NA	=V288=	.535 F2	+	.845	E288	.287			
NS	=V289=	.691*F2	+	.723	E289	.477			
SEEDS	=V290=	.660 F3	+	.751	E290	.435			
COMB	=V291=	.566*F3	+	.824	E291	.321			
MAT_1	=V292=	.439 F4	+	.899	E292	.193			
MAT_2	=V293=	.747*F4	+	.665	E293	.557			
SOC_A	=V295=	.812 F5	+	.583	E295	.660			
SOC_B	=V296=	.687*F5	+	.727	E296	.472			
MATH1	=V297=	.384 F12	+	.923	E297	.147			
SUP1	=V299=	.784*F12	+	.620	E299	.615			
SUP2	=V300=	.726*F12	+	.688	E300	.527			
SOC2	=V302=	.731*F12	+	.682	E302	.535			
SPOR	=V305=	.413*F12	+	.911	E305	.171			
F2ACHIE	=V310=	.716 F22	+	.698	E310	.513			
F2ORG	=V311=	.932*F22	+	.363	E311	.868			
F1EMO	=V312=	.999 F21	+	.036	E312	.999			
F1EGO	=V313=	.484*F21	+	.875	E313	.235			
F5PROS	=V314=	.689 F25	+	.724	E314	.475			
F5EXT	=V316=	.751*F25	+	.660	E316	.564			
F4HELP	=V317=	.729 F24	+	.685	E317	.531			
F4AGR	=V318=	.877*F24	+	.480	E318	.769			
F3INTE	=V320=	.823 F23	+	.568	E320	.677			
F3OPEN	=V321=	.583*F23	+	.813	E321	.339			
TCWL	=V369=	.376 F34	+	.926	E369	.142			
PEGD	=V370=	.596*F34	+	.803	E370	.356			
COMEM	=V371=	.788*F34	+	.616	E371	.621			
STORY	=V372=	.530*F34	+	.848	E372	.280			
FAC_JOY	=V373=	.440 F35	+	.898	E373	.194			
FAC_GRIF	=V374=	.521*F35	+	.854	E374	.271			
FAC_SURP	=V375=	.885*F35	+	.466	E375	.783			
SPAC	=F1 =	.572*F10	+	.820	D1	.327			
QUA	=F2 =	.964*F10	+	.267	D2	.929			
EXP	=F3 =	1.000*F10	+	.000	D3	1.000			
IND_M	=F4 =	.894 F10	+	.447	D4	.800			
SOCI	=F5 =	.848*F10	+	.530	D5	.719			
G	=F10 =	.871*V3	+	.491	D10	.759			
COGN_SSS	=F12 =	.910*F20	+	.415	D12	.828			
COGN_S	=F13 =	.414*F20	+	.910	D13	.171			
HA_EV	=F14 =	.549 F20	+	.836	D14	.302			
COGN	=F20 =	.302*F10	+	.122*D1	+	.708*D2	+	.088*D4	
		+ .144*D5	+	.262 D20	+	.233*D34	+	.492*D35	.932
N	=F21 =	-.090*F30	+	.996	D21	.008			
C	=F22 =	.633*F30	+	.774	D22	.400			
O	=F23 =	.733 F30	+	.680	D23	.538			
A	=F24 =	.675*F30	+	.738	D24	.455			

E	=F25 =	.533*	F30	+	.846	D25	.284
GFP	=F30 =	.720*	F20	+	.694	D30	.518
T_EI_SK	=F31 =	.668*	F30	+	.744	D31	.446
T_EI_STA	=F32 =	-.211*	F30	+	.977	D32	.045
T_EI_SEN	=F33 =	.572*	F30	+	.820	D33	.327
A_EI_REC	=F34 =	.899*	F10	+	.438	D34	.808
A_EI_DEF	=F35 =	.501*	F10	+	.866	D35	.251

GOODNESS OF FIT SUMMARY FOR METHOD = ML
 MODEL AIC = -174.070 MODEL CAIC = -5789.731
 CHI-SQUARE = 2327.930 BASED ON 1251 DEGREES OF FREEDOM
 PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS .00000

COMPARATIVE FIT INDEX (CFI) = .997
 ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA) = .060
 90% CONFIDENCE INTERVAL OF RMSEA (.056, .063)

RELIABILITY COEFFICIENTS

 CRONBACH'S ALPHA = .805

Model 3: Top-down mediation of cognizance between personality and cognitive factors.

STANDARDIZED SOLUTION:

R-SQUARED

SR1SELFR=V41 =	.469	F13	+	.883	E41	.220
SR2SELFR=V42 =	.857*	F13	+	.516	E42	.734
SR50SELF=V90 =	.453*	F13	+	.891	E90	.206
EI8 =V187=	.636*	F32	+	.772	E187	.405
EI13 =V192=	.668	F33	+	.744	E192	.446
EI15 =V194=	.734	F32	+	.679	E194	.539
EI17 =V196=	.609	F31	+	.793	E196	.371
EI18 =V197=	.622*	F31	+	.783	E197	.387
EI19 =V198=	.636*	F33	+	.772	E198	.404
EI20 =V199=	.627*	F31	+	.779	E199	.393
EI21 =V200=	.516*	F31	+	.856	E200	.267
EI25 =V204=	.782*	F33	+	.624	E204	.611
EI26 =V205=	.609*	F33	+	.793	E205	.371
EI31 =V210=	.572*	F32	+	.820	E210	.328
EI35 =V214=	.511*	F32	+	.859	E214	.261
HAI_F1 =V279=	.348	F14	+	.938	E279	.121
HAI_SD1 =V280=	.457*	F14	+	.889	E280	.209
HAI_MT5 =V282=	.443*	F14	+	.896	E282	.196
HAI_S1 =V283=	.258*	F14	+	.966	E283	.067
BOTTLE =V285=	.715	F1	+	.699	E285	.511
CAR =V286=	.510*	F1	+	.860	E286	.260
NA =V288=	.501	F2	+	.866	E288	.251
NS =V289=	.647*	F2	+	.762	E289	.419
SEEDS =V290=	.638	F3	+	.770	E290	.407
COMB =V291=	.555*	F3	+	.832	E291	.308
MAT_1 =V292=	.476	F4	+	.879	E292	.227
MAT_2 =V293=	.705*	F4	+	.709	E293	.497
SOC_A =V295=	.805	F5	+	.593	E295	.649
SOC_B =V296=	.659*	F5	+	.752	E296	.434
MATH1 =V297=	.363	F12	+	.932	E297	.132
SUP1 =V299=	.780*	F12	+	.626	E299	.608
SUP2 =V300=	.710*	F12	+	.705	E300	.504
SOC2 =V302=	.743*	F12	+	.669	E302	.552
SPOR =V305=	.394*	F12	+	.919	E305	.155

F2ACHIE	=V310=	.743 F22	+	.669 E310					.552
F2ORG	=V311=	.901*F22	+	.434 E311					.811
F1EMO	=V312=	.484 F21	+	.875 E312					.235
F1EGO	=V313=	.999*F21	+	.033 E313					.999
F5PROS	=V314=	.578 F25	+	.816 E314					.335
F5EXT	=V316=	.896*F25	+	.445 E316					.802
F4HELP	=V317=	.681 F24	+	.733 E317					.463
F4AGR	=V318=	.943*F24	+	.333 E318					.889
F3INTE	=V320=	.999 F23	+	.043 E320					.998
F3OPEN	=V321=	.480*F23	+	.877 E321					.230
TCWL	=V369=	.355 F34	+	.935 E369					.126
PEGD	=V370=	.573*F34	+	.820 E370					.328
COMEM	=V371=	.769*F34	+	.640 E371					.591
STORY	=V372=	.503*F34	+	.864 E372					.253
FAC_JOY	=V373=	.418 F35	+	.908 E373					.175
FAC_GRIF	=V374=	.526*F35	+	.850 E374					.277
FAC_SURP	=V375=	.877*F35	+	.480 E375					.769
SPAC	=F1 =	.534*F10	+	.845 D1					.285
QUA	=F2 =	.967*F10	+	.255 D2					.935
EXP	=F3 =	.994*F10	+	.107 D3					.988
IND_M	=F4 =	.866 F10	+	.499 D4					.751
SOCI	=F5 =	.844*F10	+	.536 D5					.712
G	=F10 =	.932*F20	+	.362 D10					.869
COGN_SSS	=F12 =	.412*F20	+	.911 D12					.170
COGN_S	=F13 =	-.190*F20	+	.982 D13					.036
HA_EV	=F14 =	.986 F20	+	.169 D14					.971
COGN	=F20 =	-.407*F30	+	.171 D20	+	.172*D21	+	.320*D22	
		+	.345*D23	+	.434*D24	+	.088*D25	+	.284*D31
		-	.437*D32	+	.294*D33				.971
N	=F21 =	-.091*F30	+	.996 D21					.008
C	=F22 =	.636*F30	+	.772 D22					.404
O	=F23 =	.633 F30	+	.774 D23					.401
A	=F24 =	.535*F30	+	.845 D24					.287
E	=F25 =	.489*F30	+	.872 D25					.239
GFP	=F30 =	-.476*V3	+	.880 D30					.226
T_EI_SK	=F31 =	.567*F30	+	.823 D31					.322
T_EI_STA	=F32 =	-.079*F30	+	.997 D32					.006
T_EI_SEN	=F33 =	.493*F30	+	.870 D33					.243
A_EI_REC	=F34 =	.906*F10	+	.423 D34					.821
A_EI_DEF	=F35 =	.520*F10	+	.854 D35					.270

GOODNESS OF FIT SUMMARY FOR METHOD = ML

MODEL AIC = 2.466 MODEL CAIC = -5617.684
 CHI-SQUARE = 2506.466 BASED ON 1252 DEGREES OF FREEDOM
 PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS .00000

COMPARATIVE FIT INDEX (CFI) = .996
 ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA) = .064
 90% CONFIDENCE INTERVAL OF RMSEA (.061, .068)

RELIABILITY COEFFICIENTS

CRONBACH'S ALPHA = .805

Model 4: Model testing effects on school performance.

STANDARDIZED SOLUTION:

R-SQUARED

SOCIAL	=V342=	.428*F11	+	.904 E342					.183
TCWL	=V369=	.420 F34	+	.908 E369					.176

PEGD	=V370=	.607*F34	+	.795	E370					.369
COMEM	=V371=	.671*F34	+	.741	E371					.450
STORY	=V372=	.396*F34	+	.918	E372					.157
FAC_JOY	=V373=	.411 F35	+	.912	E373					.169
FAC_GRIF	=V374=	.419*F35	+	.908	E374					.175
FAC_SURP	=V375=	.877*F35	+	.481	E375					.768
GREEK	=V376=	.964 F4	+	.266	E376					.929
MATHS	=V377=	.855*F4	+	.518	E377					.731
COGN	=F1 =	.222*F11	+	.975	D1					.049
GFP	=F2 =	-.170*F11	+	.587*D1		+	.792	D2		.373
GEI	=F3 =	.441*F11	+	.583*D1		+	.452*D2		+.511 D3	.739
SCH	=F4 =	.170*F11	+	.345*D1		+	.350*D2		+.854 D4	.271
GF	=F11 =	.704*V3	+	.710	D11					.496
COGN_SSS	=F12 =	.997 F1	+	.075	D12					.994
COGN_S	=F13 =	.349*F1	+	.937	D13					.122
HA_EV	=F14 =	.265*F1	+	.752*D11		+	.550	D14		.698
N	=F21 =	-.208*F211	+	.978	D21					.043
C	=F22 =	.927*F211	+	.374	D22					.860
O	=F23 =	.663*F212	+	.749	D23					.439
A	=F24 =	.625 F211	+	.781	D24					.390
E	=F25 =	.431 F212	+	.903	D25					.185
T_EI_SK	=F31 =	.730*F311	+	.684	D31					.533
T_EI_STA	=F32 =	-.359*F311	+	.933	D32					.129
T_EI_SEN	=F33 =	.719 F311	+	.695	D33					.517
A_EI_REC	=F34 =	.677*F312	+	.736	D34					.459
A_EI_DEF	=F35 =	.797 F312	+	.604	D35					.635
A_STA	=F211=	.881*F2	+	.473	D211					.776
B_PLA	=F212=	.989 F2	+	.147	D212					.978
EIt	=F311=	.828*F3	+	.560	D311					.686
EIA	=F312=	.995 F3	+	.095	D312					.991

CORRELATIONS AMONG INDEPENDENT VARIABLES

	E ---	D ---	
E341- QUAL	.329*I		I
E282-SEA_MT5	I		I
	I		I

GOODNESS OF FIT SUMMARY FOR METHOD = ML

MODEL AIC = -504.511 MODEL CAIC = -5026.663

CHI-SQUARE = 1701.489 BASED ON 1103 DEGREES OF FREEDOM
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS .00000

COMPARATIVE FIT INDEX (CFI) = .994
ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA) = .058
90% CONFIDENCE INTERVAL OF RMSEA (.052, .063)

RELIABILITY COEFFICIENTS

CRONBACH'S ALPHA = .802