

ภาคผนวก ง

ผลการวิเคราะห์โมเดลความสัมพันธ์เชิงสาเหตุของการรับรู้ความสามารถทางคณิตศาสตร์ของ
นักเรียนชั้นประถมศึกษาปีที่ 6 ในโรงเรียนสังกัดสำนักงานคณะกรรมการการศึกษาขั้นพื้นฐาน

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The following lines were read from file A:\MATH.SPL:

PATH ANALYSIS FOR PERCEPTION MODEL

DA NI=12 NO=400 MA=KM

LA

'Y1"Y2"Y3"Y4"Y5"Y6"Y7"Y8"Y9"X1"X2"X3'

KM

1.000

.778 1.000

.730 .719 1.000

.522 .453 .450 1.000

.710 .607 .543 .516 1.000

.655 .557 .563 .352 .594 1.000

.553 .511 .461 .469 .602 .569 1.000

.696 .606 .687 .465 .669 .750 .567 1.000

.043 .142 .154 .195 .076 .025 .141 .042 1.000

.053 .003 .038 -.108 -.004 .052 -.050 .023 -.015 1.000

.281 .204 .205 .157 .262 .152 .160 .139 -.020 .078 1.000

.455 .436 .443 .709 .535 .308 .524 .373 .332 -.050 .142 1.000

SD

.657 .745 .803 .809 .722 .576 .845 .723 1.15 .585 .500 1.07

MO NX=3 NY=9 NE=3 NK=3 C

LX=FU,FI LY=FU,FI BE=FU,FI GA=FU,FI PS=FU,FI TE=FU,FI TD=FU,FI PH=FU,FI

FR LY(1,1) LY(2,1) LY(3,1) LY(5,3) LY(6,3) LY(7,3) LY(8,3) LY(9,3)

ST 1 LX(1,1) LX(2,2) LX(3,3) LY(4,2)

FR BE(3,1) BE(3,2) BE(1,2)

FR TE(1,1) TE(2,2) TE(3,3) TE(5,5) TE(6,6) TE(7,7) TE(8,8) TE(9,9) TE(5,1) TE(8,6) TE(9,1) C

TE(7,6) TE(4,1) TE(6,1) TE(9,4) TE(7,3) TE(8,2) TE(3,1) TE(2,5) TE(8,7) TE(7,1) TE(6,2) TE(9,5) C

TE(5,3) TE(6,4) TE(8,4) TE(9,8) TE(9,6) TE(8,3) TE(7,5)

FR GA(1,1) GA(1,2) GA(1,3) GA(2,2) GA(2,3) GA(3,3)

ST 0 TD(1,1) TD(2,2) TD(3,3) TE(4,4)

FR TD(3,2) TD(2,1)

FR PS(1,1) PS(2,2) PS(3,3)

FR PH(1,1) PH(2,2) PH(3,3)

FR TH(3,9) TH(2,1) TH(1,7) TH(3,8) TH(1,2) TH(2,5) TH(2,2) TH(3,6) TH(3,7) TH(2,8) TH(3,3)

TH(2,9)

LE

'PARENT"TEACHER"STUDENT'

LK

'ATT"SEX"GRADE'

PATH DIAGRAM

OU SE TV EF SS MI RS FS ND=3 ADD=OFF IT=1000

PATH ANALYSIS FOR PERCEPTION MODEL

Number of Input Variables 12

Number of Y - Variables 9

Number of X - Variables 3

Number of ETA - Variables 3

Number of KSI - Variables 3

Number of Observations 400

PATH ANALYSIS FOR PERCEPTION MODEL

Covariance Matrix

	Y1	Y2	Y3	Y4	Y5	Y6
Y1	1.000					
Y2	0.778	1.000				
Y3	0.730	0.719	1.000			
Y4	0.522	0.453	0.450	1.000		
Y5	0.710	0.607	0.543	0.516	1.000	
Y6	0.655	0.557	0.563	0.352	0.594	1.000
Y7	0.553	0.511	0.461	0.469	0.602	0.569
Y8	0.696	0.606	0.687	0.465	0.669	0.750
Y9	0.043	0.142	0.154	0.195	0.076	0.025
X1	0.053	0.003	0.038	-0.108	-0.004	0.052
X2	0.281	0.204	0.205	0.157	0.262	0.152
X3	0.455	0.436	0.443	0.709	0.535	0.308

Covariance Matrix

	Y7	Y8	Y9	X1	X2	X3
Y7	1.000					
Y8	0.567	1.000				
Y9	0.141	0.042	1.000			
X1	-0.050	0.023	-0.015	1.000		
X2	0.160	0.139	-0.020	0.078	1.000	
X3	0.524	0.373	0.332	-0.050	0.142	1.000

PATH ANALYSIS FOR PERCEPTION MODEL

Parameter Specifications

LAMBDA-Y

	PARENT	TEACHER	STUDENT
Y1	0	0	0
Y2	1	0	0
Y3	2	0	0
Y4	0	0	0
Y5	0	0	0
Y6	0	0	3
Y7	0	0	4
Y8	0	0	5
Y9	0	0	6

BETA

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	0	7	0
TEACHER	0	0	0
STUDENT	8	9	0

GAMMA

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	10	11	12
TEACHER	0	13	14
STUDENT	0	0	15

PHI

Note: This matrix is diagonal.

ATT	SEX	GRADE
-----	-----	-----
16	17	18

PSI

Note: This matrix is diagonal.

PARENT	TEACHER	STUDENT
-----	-----	-----
19	20	21

THETA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
	-----	-----	-----	-----	-----	-----
Y1	22					
Y2	0	23				
Y3	24	0	25			
Y4	26	0	0	0		
Y5	27	28	29	0	30	
Y6	31	32	0	33	0	34
Y7	35	0	36	0	37	38
Y8	0	40	41	42	0	43
Y9	46	0	0	47	48	49

THETA-EPS

	Y7	Y8	Y9
	-----	-----	-----
Y7	39		
Y8	44	45	
Y9	0	50	51

THETA-DELTA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
	-----	-----	-----	-----	-----	-----
X1	0	52	0	0	0	0
X2	54	55	0	0	56	0
X3	0	0	60	0	0	61

THETA-DELTA-EPS

	Y7	Y8	Y9
	-----	-----	-----
X1	53	0	0
X2	0	57	58
X3	62	63	64

THETA-DELTA

	X1	X2	X3
	-----	-----	-----
X1	0		
X2	59	0	
X3	0	65	0

PATH ANALYSIS FOR PERCEPTION MODEL

Number of Iterations = 9

LISREL Estimates (Maximum Likelihood)

LAMBDA-Y

	PARENT	TEACHER	STUDENT
	-----	-----	-----
Y1	0.913	--	--

Y2 0.857 -- --
(0.056)
15.256

Y3 0.842 -- --
(0.040)
21.172

Y4 -- 1.000 --

Y5 -- -- 0.764

Y6 -- -- 0.778
(0.090)
8.673

Y7 -- -- 0.685
(0.061)
11.186

Y8 -- -- 0.881
(0.097)
9.108

Y9 -- -- 0.200
(0.061)
3.311

LAMBDA-X

	ATT	SEX	GRADE
	-----	-----	-----
X1	1.000	--	--
X2	--	1.000	--
X3	--	--	1.000

BETA

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--	0.283	--
		(0.077)	
		3.683	
TEACHER	--	--	--
STUDENT	0.661	0.141	--
	(0.105)	(0.070)	
	6.298	2.020	

GAMMA

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	0.102	0.210	0.307
	(0.043)	(0.057)	(0.073)
	2.402	3.694	4.183
TEACHER	--	0.161	0.710
	(0.048)	(0.035)	
	3.324	20.136	
STUDENT	--	--	0.265
			(0.070)
			3.798

Covariance Matrix of ETA and KSI

	PARENT	TEACHER	STUDENT	ATT	SEX	GRADE
	-----	-----	-----	-----	-----	-----
PARENT	1.000					
TEACHER	0.533	0.999				
STUDENT	0.871	0.681	1.000			
ATT	0.102	--	0.068	1.001		
SEX	0.256	0.161	0.192	--	1.003	
GRADE	0.506	0.707	0.698	--	--	0.996

PHI

Note: This matrix is diagonal.

ATT	SEX	GRADE
-----	-----	-----
1.001	1.003	0.996
(0.071)	(0.071)	(0.070)
14.125	14.131	14.159

PSI

Note: This matrix is diagonal.

PARENT	TEACHER	STUDENT
-----	-----	-----
0.630	0.471	0.143
(0.072)	(0.037)	(0.052)
8.784	12.675	2.733

Squared Multiple Correlations for Structural Equations

PARENT	TEACHER	STUDENT
-----	-----	-----
0.370	0.528	0.857

Squared Multiple Correlations for Reduced Form

PARENT	TEACHER	STUDENT
-----	-----	-----
0.332	0.528	0.531

Reduced Form

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	0.102	0.255	0.508
	(0.043)	(0.058)	(0.047)
	2.402	4.401	10.775
TEACHER	--	0.161	0.710
	(0.048)	(0.035)	
	3.324	20.136	
STUDENT	0.068	0.191	0.701
	(0.030)	(0.049)	(0.055)
	2.282	3.938	12.853

THETA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
	-----	-----	-----	-----	-----	-----
Y1	0.174					
	(0.048)					
	3.606					
Y2	--	0.268				
		(0.044)				
		6.084				

Y3	-0.032	--	0.295
	(0.042)		(0.047)
	-0.759		6.258

Y4	0.047	--	--	--
	(0.023)			
	2.046			

Y5	0.108	0.038	-0.013	--	0.417
	(0.059)	(0.050)	(0.057)		(0.062)
	1.838	0.763	-0.226		6.727

Y6	0.040	-0.019	--	-0.172	--	0.397
	(0.021)	(0.040)		(0.055)		(0.073)
	1.902	-0.491		-3.141		5.444

Y7	0.009	--	-0.043	--	0.074	0.038
	(0.033)		(0.035)		(0.042)	(0.050)
	0.273		-1.243		1.762	0.758

Y8	--	-0.048	0.046	-0.132	--	0.068
		(0.040)	(0.024)	(0.061)		(0.071)
		-1.205	1.884	-2.171		0.958

Y9	-0.111	--	--	0.057	-0.076	-0.130
	(0.028)			(0.044)	(0.037)	(0.040)
	-4.031			1.288	-2.077	-3.218

THETA-EPS

	Y7	Y8	Y9
Y7	0.529 (0.058) 9.116		
Y8	-0.035 (0.050) -0.699	0.228 (0.082) 2.771	
Y9	-- (0.039) -3.452	-0.136 (0.069) 13.927	0.958

Squared Multiple Correlations for Y - Variables

Y1	Y2	Y3	Y4	Y5	Y6
0.827	0.732	0.706	1.000	0.583	0.604

Squared Multiple Correlations for Y - Variables

Y7	Y8	Y9
0.470	0.773	0.040

THETA-DELTA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
	-----	-----	-----	-----	-----	-----
X1	--	-0.045	--	--	--	--
		(0.030)				
		-1.497				
X2	0.050	-0.014	--	--	0.111	--
	(0.034)	(0.036)			(0.037)	
	1.459	-0.402			3.019	
X3	--	--	0.012	--	--	-0.233
			(0.023)			(0.061)
			0.499			-3.812
			0.500			

THETA-DELTA-EPS

	Y7	Y8	Y9
	-----	-----	-----
X1	-0.068	--	--
	(0.036)		
	-1.902		
X2	--	-0.030	-0.058
		(0.028)	(0.048)
		-1.065	-1.225

X3	0.042	-0.242	0.188
	(0.032)	(0.066)	(0.044)
	1.325	-3.650	4.232

THETA-DELTA

	X1	X2	X3
	-----	-----	-----
X1	--		
X2	0.099	--	
	(0.049)		
	2.035		
X3	--	0.136	--
		(0.048)	
		2.830	

Squared Multiple Correlations for X - Variables

X1	X2	X3
-----	-----	-----
1.000	1.000	1.000

Goodness of Fit Statistics

Degrees of Freedom = 13

Minimum Fit Function Chi-Square = 7.846 (P = 0.854)

Normal Theory Weighted Least Squares Chi-Square = 7.821 (P = 0.855)

Estimated Non-centrality Parameter (NCP) = 0.0

90 Percent Confidence Interval for NCP = (0.0 ; 3.924)

Minimum Fit Function Value = 0.0197

Population Discrepancy Function Value (F0) = 0.0

90 Percent Confidence Interval for F0 = (0.0 ; 0.00984)

Root Mean Square Error of Approximation (RMSEA) = 0.0

90 Percent Confidence Interval for RMSEA = (0.0 ; 0.0275)

P-Value for Test of Close Fit (RMSEA < 0.05) = 0.997

Expected Cross-Validation Index (ECVI) = 0.358

90 Percent Confidence Interval for ECVI = (0.358 ; 0.368)

ECVI for Saturated Model = 0.391

ECVI for Independence Model = 6.709

Chi-Square for Independence Model with 66 Degrees of Freedom = 2652.843

Independence AIC = 2676.843

Model AIC = 137.821

Saturated AIC = 156.000

Independence CAIC = 2736.740

Model CAIC = 462.267

Saturated CAIC = 545.334

Normed Fit Index (NFI) = 0.997

Non-Normed Fit Index (NNFI) = 1.010

Parsimony Normed Fit Index (PNFI) = 0.196

Comparative Fit Index (CFI) = 1.000

Incremental Fit Index (IFI) = 1.002

Relative Fit Index (RFI) = 0.985

Critical N (CN) = 1409.157

Root Mean Square Residual (RMR) = 0.0190

Standardized RMR = 0.0190

Goodness of Fit Index (GFI) = 0.997

Adjusted Goodness of Fit Index (AGFI) = 0.980

Parsimony Goodness of Fit Index (PGFI) = 0.166

PATH ANALYSIS FOR PERCEPTION MODEL

Fitted Covariance Matrix

	Y1	Y2	Y3	Y4	Y5	Y6
Y1	1.007					
Y2	0.782	1.002				
Y3	0.737	0.721	1.005			
Y4	0.533	0.457	0.449	0.999		
Y5	0.716	0.608	0.548	0.521	1.002	
Y6	0.658	0.561	0.570	0.358	0.595	1.003
Y7	0.553	0.511	0.459	0.466	0.598	0.571
Y8	0.700	0.609	0.692	0.469	0.674	0.754
Y9	0.048	0.149	0.147	0.193	0.077	0.026

X1	0.093	0.043	0.086	--	0.052	0.053
X2	0.283	0.205	0.215	0.161	0.258	0.149
X3	0.461	0.433	0.437	0.707	0.534	0.310

Fitted Covariance Matrix

	Y7	Y8	Y9	X1	X2	X3
-----	-----	-----	-----	-----	-----	-----
Y7	0.998					
Y8	0.569	1.005				
Y9	0.137	0.041	0.998			
X1	-0.022	0.060	0.014	1.001		
X2	0.131	0.139	-0.020	0.099	1.003	
X3	0.520	0.373	0.327	--	0.136	0.996

Fitted Residuals

	Y1	Y2	Y3	Y4	Y5	Y6
-----	-----	-----	-----	-----	-----	-----
Y1	-0.007					
Y2	-0.004	-0.002				
Y3	-0.007	-0.002	-0.005			
Y4	-0.011	-0.004	0.001	0.001		
Y5	-0.006	-0.001	-0.005	-0.005	-0.002	
Y6	-0.003	-0.004	-0.007	-0.006	-0.001	-0.003
Y7	0.000	0.000	0.002	0.003	0.004	-0.002
Y8	-0.004	-0.003	-0.005	-0.004	-0.005	-0.004
Y9	-0.005	-0.007	0.007	0.002	-0.001	-0.001
X1	-0.040	-0.040	-0.048	-0.108	-0.056	-0.001
X2	-0.002	-0.001	-0.010	-0.004	0.004	0.003
X3	-0.006	0.003	0.006	0.002	0.001	-0.002

Fitted Residuals

	Y7	Y8	Y9	X1	X2	X3
Y7	0.002					
Y8	-0.002	-0.005				
Y9	0.004	0.001	0.002			
X1	-0.028	-0.037	-0.029	-0.001		
X2	0.029	0.000	0.000	-0.021	-0.003	
X3	0.004	0.000	0.005	-0.050	0.006	0.004

Summary Statistics for Fitted Residuals

Smallest Fitted Residual = -0.108

Median Fitted Residual = -0.002

Largest Fitted Residual = 0.029

Stemleaf Plot

-10|8
- 8|
- 6|
- 4|60800
- 2|7981
- 0|107777666555555444444333322222211111100000
0|111122222333444445667
2|9

Standardized Residuals

	Y1	Y2	Y3	Y4	Y5	Y6
	-----	-----	-----	-----	-----	-----
Y1	-1.021					
Y2	-0.561	-0.621				
Y3	-1.074	-0.317	-0.897			
Y4	-1.301	-0.684	0.056	0.271		
Y5	-0.877	-0.304	-0.720	-0.637	-0.273	
Y6	-0.537	-0.700	-0.462	-1.225	-0.067	-1.129
Y7	-0.050	0.038	0.273	0.360	0.581	-0.339
Y8	-0.581	-0.589	-0.717	-0.688	-1.103	-1.522
Y9	-0.490	-0.318	0.275	0.380	-0.161	-0.123
X1	-1.279	-1.572	-1.384	-2.158	-1.248	-0.014
X2	-0.222	-0.112	-1.367	-0.429	0.237	0.075
X3	-0.532	0.397	0.429	0.511	0.140	-0.335

Standardized Residuals

	Y7	Y8	Y9	X1	X2	X3
	-----	-----	-----	-----	-----	-----
Y7	0.591					
Y8	-0.357	-1.428				
Y9	0.132	0.221	0.432			
X1	-0.863	-0.848	-0.576	-0.837		
X2	0.735	-0.027	0.004	-1.660	-1.578	
X3	0.512	-0.023	0.507	-1.001	0.373	0.880

Summary Statistics for Standardized Residuals

Smallest Standardized Residual = -2.158

Median Standardized Residual = -0.348

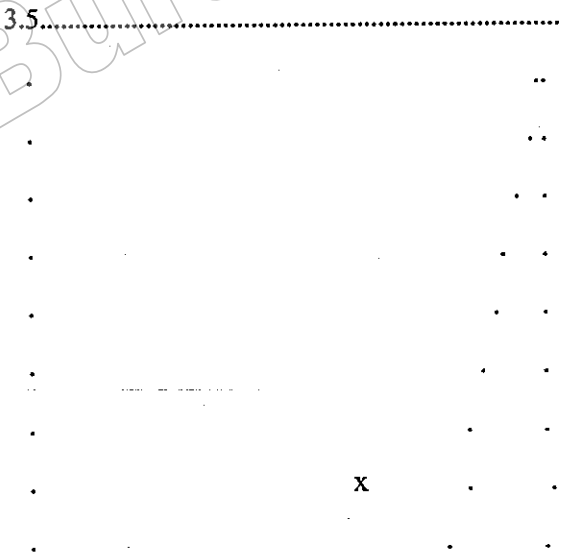
Largest Standardized Residual = 0.880

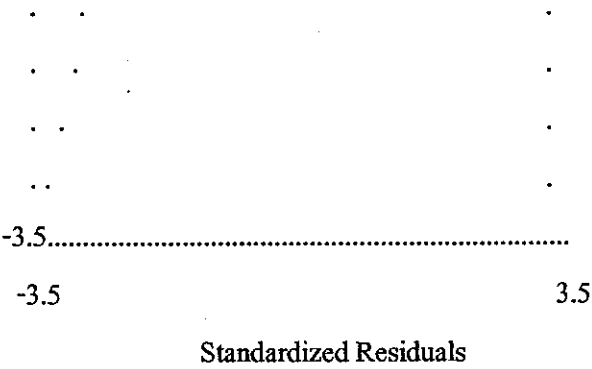
Stemleaf Plot

- 2|2
- 1|7665
- 1|444332211100
- 0|9998877777666665555
- 0|4433333322111000000
0|111122333444444
0|5556679

PATH ANALYSIS FOR PERCEPTION MODEL

Qplot of Standardized Residuals





PATH ANALYSIS FOR PERCEPTION MODEL

Modification Indices and Expected Change

Modification Indices for LAMBDA-Y

	PARENT	TEACHER	STUDENT
Y1	--	0.263	0.136
Y2	--	0.031	0.022
Y3	--	0.176	0.088
Y4	4.427	--	4.491
Y5	0.678	0.080	--
Y6	0.023	0.198	--
Y7	0.297	0.002	--
Y8	0.070	0.028	--
Y9	0.041	0.119	--

Expected Change for LAMBDA-Y

	PARENT	TEACHER	STUDENT
	-----	-----	-----
Y1	--	-0.042	-0.047
Y2	--	-0.020	0.055
Y3	--	0.021	0.040
Y4	-0.711	--	-1.016
Y5	-0.508	0.056	--
Y6	-0.026	-0.205	--
Y7	0.292	-0.008	--
Y8	0.052	-0.085	--
Y9	-0.048	0.261	--

Standardized Expected Change for LAMBDA-Y

	PARENT	TEACHER	STUDENT
	-----	-----	-----
Y1	--	-0.042	-0.047
Y2	--	-0.020	0.055
Y3	--	0.021	0.040
Y4	-0.711	--	-1.016
Y5	-0.508	0.056	--
Y6	-0.026	-0.205	--
Y7	0.292	-0.008	--
Y8	0.052	-0.084	--
Y9	-0.048	0.261	--

Modification Indices for LAMBDA-X

	ATT	SEX	GRADE
	-----	-----	-----
X1	--	4.427	0.334
X2	--	--	0.234
X3	0.973	0.234	--

Expected Change for LAMBDA-X

	ATT	SEX	GRADE
	-----	-----	-----
X1	--	-0.451	-0.026
X2	--	--	0.088
X3	0.032	0.764	--

Standardized Expected Change for LAMBDA-X

	ATT	SEX	GRADE
	-----	-----	-----
X1	--	-0.452	-0.026
X2	--	--	0.088
X3	0.032	0.765	--

Modification Indices for BETA

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--	--	0.189
TEACHER	4.427	--	4.470
STUDENT	--	--	--

Expected Change for BETA

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--	--	-0.418
TEACHER	-0.711	--	-0.982
STUDENT	--	--	--

Standardized Expected Change for BETA

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--	--	-0.418
TEACHER	-0.712	--	-0.983
STUDENT	--	--	--

Modification Indices for GAMMA

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	--	--	--
TEACHER	4.427	--	--
STUDENT	0.002	0.229	--

Expected Change for GAMMA

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	--	--	--
TEACHER	-0.073	--	--
STUDENT	0.001	0.026	--

Standardized Expected Change for GAMMA

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	--	--	--
TEACHER	-0.073	--	--
STUDENT	0.001	0.026	--

Modification Indices for PHI

	ATT	SEX	GRADE
	-----	-----	-----
ATT	--		
SEX	4.427	--	
GRADE	0.334	0.234	--

Expected Change for PHI

	ATT	SEX	GRADE
	-----	-----	-----
ATT	--		
SEX	-0.453	--	
GRADE	-0.026	0.088	--

Standardized Expected Change for PHI

	ATT	SEX	GRADE
	-----	-----	-----
ATT	--		
SEX	-0.452	--	
GRADE	-0.026	0.088	--

Modification Indices for PSI

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--		
TEACHER	--	--	
STUDENT	0.189	0.229	--

Expected Change for PSI

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--		
TEACHER	--	--	
STUDENT	-0.060	-0.075	--

Standardized Expected Change for PSI

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--		
TEACHER	--	--	
STUDENT	-0.060	-0.075	--

Modification Indices for THETA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
Y1	--					
Y2	0.006	--				
Y3	--	0.001	--			
Y4	--	0.123	0.181	0.182		
Y5	--	--	--	0.009	--	
Y6	--	--	0.082	--	0.060	--
Y7	--	0.209	--	0.046	--	--
Y8	0.072	--	--	--	0.073	--
Y9	--	0.179	0.124	--	--	--

Modification Indices for THETA-EPS

	Y7	Y8	Y9
Y7	--		
Y8	--	--	
Y9	0.026	--	--

Expected Change for THETA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
Y1	--					
Y2	0.003	--				
Y3	--	0.001	--			
Y4	--	-0.013	0.015	0.603		

Y5	--	--	--	-0.009	--	
Y6	--	--	-0.011	--	0.009	--
Y7	--	-0.048	--	-0.023	--	--
Y8	0.012	--	--	--	-0.012	--
Y9	--	-0.014	0.012	--	--	--

Expected Change for THETA-EPS

	Y7	Y8	Y9
	-----	-----	-----
Y7	--		
Y8	--	--	
Y9	0.007	--	--

Modification Indices for THETA-DELTA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
	-----	-----	-----	-----	-----	-----
X1	0.182	--	0.262	4.402	0.503	0.669
X2	--	--	0.234	0.234	--	0.035
X3	0.310	0.254	--	0.032	0.243	--

Modification Indices for THETA-DELTA-EPS

	Y7	Y8	Y9
	-----	-----	-----
X1	--	0.000	0.108
X2	0.646	--	--
X3	--	--	--

Expected Change for THETA-DELTA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
	-----	-----	-----	-----	-----	-----
X1	0.013	--	-0.016	-0.072	-0.022	0.026
X2	--	--	-0.030	-0.166	--	-0.007
X3	-0.020	0.017	--	0.250	0.060	--

Expected Change for THETA-DELTA-EPS

	Y7	Y8	Y9
	-----	-----	-----
X1	--	0.000	-0.016
X2	0.032	--	--
X3	--	--	--

Modification Indices for THETA-DELTA

	X1	X2	X3
	-----	-----	-----
X1	--		
X2	--	--	
X3	0.966	--	0.243

Expected Change for THETA-DELTA

	X1	X2	X3
	-----	-----	-----
X1	--		
X2	--	--	
X3	0.032	--	-0.294

Maximum Modification Index is 4.49 for Element (4, 3) of LAMBDA-Y

PATH ANALYSIS FOR PERCEPTION MODEL

Factor Scores Regressions

ETA

	Y1	Y2	Y3	Y4	Y5	Y6
	-----	-----	-----	-----	-----	-----
PARENT	0.468	0.249	0.202	-0.023	-0.108	0.006
TEACHER	-0.332	0.087	-0.090	0.996	-0.091	0.305
STUDENT	0.037	0.155	-0.026	0.073	0.015	0.191

ETA

	Y7	Y8	Y9	X1	X2	X3
	-----	-----	-----	-----	-----	-----
PARENT	0.057	0.169	0.068	0.024	0.021	0.048
TEACHER	-0.119	0.231	-0.067	0.004	0.042	0.105
STUDENT	0.015	0.458	0.034	0.021	0.000	0.318

KSI

	Y1	Y2	Y3	Y4	Y5	Y6
	-----	-----	-----	-----	-----	-----
ATT	-0.043	0.116	-0.017	0.004	-0.011	-0.039
SEX	-0.118	0.120	0.002	0.191	-0.201	-0.018
GRADE	-0.174	0.069	-0.259	-0.065	-0.203	0.307

KSI

	Y7	Y8	Y9	X1	X2	X3
	-----	-----	-----	-----	-----	-----
ATT	0.126	-0.036	-0.017	1.019	-0.107	-0.040
SEX	0.094	0.152	0.109	-0.096	1.052	-0.306
GRADE	-0.269	0.515	-0.200	0.006	-0.103	1.250

PATH ANALYSIS FOR PERCEPTION MODEL

Standardized Solution

LAMBDA-Y

	PARENT	TEACHER	STUDENT
	-----	-----	-----
Y1	0.913	--	--
Y2	0.857	--	--
Y3	0.842	--	--
Y4	--	0.999	--
Y5	--	--	0.764
Y6	--	--	0.778
Y7	--	--	0.685
Y8	--	--	0.881
Y9	--	--	0.200

LAMBDA-X

	ATT	SEX	GRADE
	-----	-----	-----
X1	1.000	--	--
X2	--	1.002	--
X3	--	--	0.998

BETA

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--	0.283	--
TEACHER	--	--	--
STUDENT	0.661	0.141	--

GAMMA

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	0.102	0.210	0.306
TEACHER	--	0.161	0.709
STUDENT	--	--	0.265

Correlation Matrix of ETA and KSI

	PARENT	TEACHER	STUDENT	ATT	SEX	GRADE
	-----	-----	-----	-----	-----	-----
PARENT	1.000					
TEACHER	0.534	1.000				
STUDENT	0.871	0.681	1.000			
ATT	0.102	--	0.068	1.000		
SEX	0.255	0.161	0.192	--	1.000	
GRADE	0.507	0.709	0.700	--	--	1.000

PSI

Note: This matrix is diagonal.

PARENT	TEACHER	STUDENT
-----	-----	-----
0.630	0.472	0.143

Regression Matrix ETA on KSI (Standardized)

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	0.102	0.255	0.507
TEACHER	--	0.161	0.709
STUDENT	0.068	0.192	0.700

PATH ANALYSIS FOR PERCEPTION MODEL

Total and Indirect Effects

Total Effects of KSI on ETA

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	0.102	0.255	0.508
	(0.043)	(0.058)	(0.047)
	2.402	4.401	10.775
TEACHER	--	0.161	0.710
	(0.048)	(0.035)	
	3.324	20.136	
STUDENT	0.068	0.191	0.701
	(0.030)	(0.049)	(0.055)
	2.282	3.938	12.853

Indirect Effects of KSI on ETA

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	--	0.045	0.201
	(0.016)	(0.055)	
	2.792	3.653	
TEACHER	--	--	--
STUDENT	0.068	0.191	0.436
	(0.030)	(0.049)	(0.069)
	2.282	3.938	6.326

Total Effects of ETA on ETA

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--	0.283	--
	(0.077)		
	3.683		
TEACHER	--	--	--
STUDENT	0.661	0.328	--
	(0.105)	(0.076)	
	6.298	4.330	

Largest Eigenvalue of $B*B'$ (Stability Index) is 0.461

Indirect Effects of ETA on ETA

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--	--	--
TEACHER	--	--	--
STUDENT	--	0.187	--
	(0.058)		
	3.211		

Total Effects of ETA on Y

	PARENT	TEACHER	STUDENT
	-----	-----	-----
Y1	0.913	0.258	--
	(0.070)		
	3.683		
Y2	0.857	0.242	--
	(0.056)	(0.065)	
	15.256	3.711	
Y3	0.842	0.238	--
	(0.040)	(0.064)	
	21.172	3.719	

Y4	--	1.000	--
Y5	0.506 (0.080) 6.298	0.251 (0.058) 4.330	0.764
Y6	0.515 (0.055) 9.417	0.255 (0.064) 4.016	0.778 (0.090) 8.673
Y7	0.453 (0.058) 7.801	0.225 (0.051) 4.367	0.685 (0.061) 11.186
Y8	0.583 (0.059) 9.934	0.289 (0.072) 4.000	0.881 (0.097) 9.108
Y9	0.133 (0.040) 3.311	0.066 (0.024) 2.767	0.200 (0.061) 3.311

Indirect Effects of ETA on Y

	PARENT	TEACHER	STUDENT
	-----	-----	-----
Y1	--	0.258 (0.070) 3.683	--

Y2	--	0.242	--
		(0.065)	
		3.711	

Y3	--	0.238	--
		(0.064)	
		3.719	

Y4	--	--	--
----	----	----	----

Y5	0.506	0.251	--
	(0.080)	(0.058)	
	6.298	4.330	

Y6	0.515	0.255	--
	(0.055)	(0.064)	
	9.417	4.016	

Y7	0.453	0.225	--
	(0.058)	(0.051)	
	7.801	4.367	

Y8	0.583	0.289	--
	(0.059)	(0.072)	
	9.934	4.000	

Y9	0.133	0.066	--
	(0.040)	(0.024)	
	3.311	2.767	

Total Effects of KSI on Y

	ATT	SEX	GRADE
	-----	-----	-----
Y1	0.093	0.233	0.463
	(0.039)	(0.053)	(0.043)
	2.402	4.401	10.775
Y2	0.088	0.218	0.435
	(0.037)	(0.050)	(0.045)
	2.374	4.345	9.741
Y3	0.086	0.215	0.428
	(0.036)	(0.048)	(0.041)
	2.396	4.442	10.324
Y4	--	0.161	0.710
		(0.048)	(0.035)
		3.324	20.136
Y5	0.052	0.146	0.536
	(0.023)	(0.037)	(0.042)
	2.282	3.938	12.853
Y6	0.053	0.149	0.546
	(0.023)	(0.035)	(0.063)
	2.332	4.311	8.649

Y7 0.046 0.131 0.480
(0.020) (0.031) (0.047)
2.338 4.241 10.170

Y8 0.060 0.169 0.618
(0.025) (0.038) (0.068)
2.343 4.381 9.050

Y9 0.014 0.038 0.140
(0.007) (0.013) (0.043)
1.975 2.839 3.302

PATH ANALYSIS FOR PERCEPTION MODEL

Standardized Total and Indirect Effects

Standardized Total Effects of KSI on ETA

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	0.102	0.255	0.507
TEACHER	--	0.161	0.709
STUDENT	0.068	0.192	0.700

Standardized Indirect Effects of KSI on ETA

	ATT	SEX	GRADE
	-----	-----	-----
PARENT	--	0.046	0.200
TEACHER	--	--	--
STUDENT	0.068	0.192	0.435

Standardized Total Effects of ETA on ETA

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--	0.283	--
TEACHER	--	--	--
STUDENT	0.661	0.328	--

Standardized Indirect Effects of ETA on ETA

	PARENT	TEACHER	STUDENT
	-----	-----	-----
PARENT	--	--	--
TEACHER	--	--	--
STUDENT	--	0.187	--

Standardized Total Effects of ETA on Y

	PARENT	TEACHER	STUDENT
	-----	-----	-----
Y1	0.913	0.258	--
Y2	0.857	0.242	--
Y3	0.842	0.238	--
Y4	--	0.999	--
Y5	0.506	0.251	0.764
Y6	0.515	0.255	0.778
Y7	0.453	0.224	0.685
Y8	0.583	0.289	0.881
Y9	0.133	0.066	0.200

Standardized Indirect Effects of ETA on Y

	PARENT	TEACHER	STUDENT
	-----	-----	-----
Y1	--	0.258	--
Y2	--	0.242	--
Y3	--	0.238	--
Y4	--	--	--
Y5	0.506	0.251	--
Y6	0.515	0.255	--
Y7	0.453	0.224	--
Y8	0.583	0.289	--
Y9	0.133	0.066	--

Standardized Total Effects of KSI on Y

	ATT	SEX	GRADE
	-----	-----	-----
Y1	0.093	0.233	0.462
Y2	0.088	0.219	0.434
Y3	0.086	0.215	0.427
Y4	--	0.161	0.708
Y5	0.052	0.146	0.535
Y6	0.053	0.149	0.544
Y7	0.046	0.131	0.479
Y8	0.060	0.169	0.617
Y9	0.014	0.038	0.140

Time used: 28.261 Seconds