

ภาคผนวก ค

ผลการวิเคราะห์โมเดลความสัมพันธ์เชิงสาเหตุของปัจจัยที่มีผลต่อการเรียนรู้อย่างมีความสุข

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BY

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The following lines were read from file A:\THESIS\MOTIFY1.SPL:

PATH ANALYSIS FOR HAPPY MODEL GROUP1

DA NI=20 NO=420 MA=KM

LA

'Y1' 'Y2' 'Y3' 'Y4' 'Y5' 'Y6' 'Y7' 'Y8' 'Y9' 'Y10' 'Y11' 'Y12' 'X1' 'X2' 'X3' 'X4' 'X5' 'X6' 'X7' 'X8'

KM

1.000

.582 1.000

.536 .642 1.000

.542 .574 .624 1.000

.442 .559 .575 .498 1.000

.296 .303 .274 .295 .236 1.000

.340 .426 .338 .420 .368 .288 1.000

.308 .381 .357 .392 .379 .330 .537 1.000

.301 .329 .311 .438 .323 .340 .450 .590 1.000

.588 .621 .597 .592 .551 .338 .524 .449 .333 1.000

.520 .527 .515 .556 .502 .347 .497 .416 .319 .729 1.000

.508 .515 .471 .487 .463 .410 .438 .539 .537 .595 .573 1.000

.457 .574 .558 .578 .519 .353 .429 .492 .515 .533 .484 .558 1.000

.524 .594 .596 .568 .539 .337 .458 .446 .435 .584 .560 .561 .726 1.000

.470 .584 .574 .539 .537 .340 .379 .385 .390 .574 .560 .523 .679 .750 1.000

.451 .420 .428 .462 .355 .353 .361 .433 .356 .507 .474 .494 .456 .473 .469 1.000

.162 .190 .106 .167 .140 .213 .181 .280 .203 .127 .121 .221 .178 .180 .205 .201 1.000

.286 .282 .181 .262 .246 .269 .334 .345 .282 .304 .289 .319 .262 .254 .263 .309 .453 1.000

.282 .349 .305 .364 .349 .332 .416 .383 .312 .394 .419 .403 .314 .327 .367 .375 .461 .675 1.000

.324 .373 .337 .365 .305 .335 .357 .379 .325 .379 .431 .365 .393 .397 .389 .416 .279 .540 .653 1.000

SD

2.163 2.763 2.754 2.851 2.278 2.538 2.431 2.447 2.545 5.036 3.454 4.545 4.429 5.460 4.433 4.909 2.709

2.874 2.886 3.176

MO NY=12 NX=8 NE=3 NK=3 C

LX=FU,FI LY=FU,FI GA=FU,FR BE=SD,FI PH=SY,FR PS=DI,FR TD=FU,FI TE=FU,FI

FR LX(1,1) LX(2,1) LX(3,1) LX(4,2) LX(5,3) LX(6,3) LX(7,3) LX(8,3)

FR LY(1,1) LY(2,1) LY(3,1) LY(4,1) LY(5,1) LY(6,2) LY(7,2) LY(8,2) LY(9,2) LY(10,3) LY(11,3) LY(12,3)

FR TE(1,1) TE(2,2) TE(3,3) TE(4,4) TE(5,5) TE(6,6) TE(7,7) TE(8,8) TE(9,9) TE(10,10) TE(11,11) TE(12,12)

FR TD(1,1) TD(2,2) TD(3,3) TD(4,4) TD(5,5) TD(6,6) TD(7,7) TD(8,8)

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

FI GA(1,2) GA(1,3) TD(4,4)

FR TE(12,9) TE(9,4) TD(8,5) TE(12,8) TE(12,6) TE(11,10) TE(10,7) TE(11,7) TE(9,8) TE(7,6) TD(6,5) C

TD(7,6) TE(8,6) TE(5,1) TD(7,1) TD(7,2) TE(5,4) TE(4,2) TE(7,3) TE(10,1) TE(12,1) TE(11,1) TD(7,4) C

TD(8,7) TE(5,2) TE(10,9) TE(11,9) TH(1,9) TH(1,8) C TE(10,2) TD(8,6) C TD(4,2) TE(6,5) TE(2,1) TD(5,3) C

TH(6,1) TH(1,11) TH(4,1) TH(1,10) C TE(12,4) TE(11,2) C TD(4,1) TE(8,1) TH(5,8) TH(1,4) TE(11,5) C

TE(12,5) TH(8,12) TE(10,3) C TH(7,5) TH(3,9) C TH(5,10) TH(2,9) TH(5,11) TH(7,7) TH(8,10) TD(3,2) C

TE(10,5) TE(10,4) C TE(12,3) TE(6,1) TE(11,3) TE(6,3) TH(6,3) TH(6,7) TH(4,4) TH(2,1) TH(5,3) TH(3,7) C

TH(4,7) C TD(6,2) TH(7,4) TH(6,8) TE(3,1) TE(3,2)

LE

'STUDY' 'STUDENT' 'HAPPY'

LK

'TEACHER' 'FRIEND' 'PARENT'

PATH DIAGRAM

OU SE TV EF SS MR MI RS FS

PATH ANALYSIS FOR HAPPY MODEL GROUP1

Number of Input Variables 20

Number of Y - Variables 12

Number of X - Variables 8

Number of ETA - Variables 3

Number of KSI - Variables 3

Number of Observations 420

PATH ANALYSIS FOR HAPPY MODEL GROUP1

Covariance Matrix to be Analyzed

	Y1	Y2	Y3	Y4	Y5	Y6
Y1	1.00					
Y2	0.58	1.00				
Y3	0.54	0.64	1.00			
Y4	0.54	0.57	0.62	1.00		
Y5	0.44	0.56	0.57	0.50	1.00	
Y6	0.30	0.30	0.27	0.29	0.24	1.00
Y7	0.34	0.43	0.34	0.42	0.37	0.29
Y8	0.31	0.38	0.36	0.39	0.38	0.33
Y9	0.30	0.33	0.31	0.44	0.32	0.34
Y10	0.59	0.62	0.60	0.59	0.55	0.34
Y11	0.52	0.53	0.52	0.56	0.50	0.35
Y12	0.51	0.52	0.47	0.49	0.46	0.41
X1	0.46	0.57	0.56	0.58	0.52	0.35
X2	0.52	0.59	0.60	0.57	0.54	0.34
X3	0.47	0.58	0.57	0.54	0.54	0.34
X4	0.45	0.42	0.43	0.46	0.35	0.35
X5	0.16	0.19	0.11	0.17	0.14	0.21
X6	0.29	0.28	0.18	0.26	0.25	0.27
X7	0.28	0.35	0.31	0.36	0.35	0.33
X8	0.32	0.37	0.34	0.36	0.30	0.34

Covariance Matrix to be Analyzed

Y7	Y8	Y9	Y10	Y11	Y12
----	----	----	-----	-----	-----

Y7	1.00					
Y8	0.54	1.00				
Y9	0.45	0.59	1.00			
Y10	0.52	0.45	0.33	1.00		
Y11	0.50	0.42	0.32	0.73	1.00	
Y12	0.44	0.54	0.54	0.60	0.57	1.00
X1	0.43	0.49	0.52	0.53	0.48	0.56
X2	0.46	0.45	0.44	0.58	0.56	0.56
X3	0.38	0.39	0.39	0.57	0.56	0.52
X4	0.36	0.43	0.36	0.51	0.47	0.49
X5	0.18	0.28	0.20	0.13	0.12	0.22
X6	0.33	0.34	0.28	0.30	0.29	0.32
X7	0.42	0.38	0.31	0.39	0.42	0.40
X8	0.36	0.38	0.33	0.38	0.43	0.37

Covariance Matrix to be Analyzed

	X1	X2	X3	X4	X5	X6
X1	1.00					
X2	0.73	1.00				
X3	0.68	0.75	1.00			
X4	0.46	0.47	0.47	1.00		
X5	0.18	0.18	0.21	0.20	1.00	
X6	0.26	0.25	0.26	0.31	0.45	1.00
X7	0.31	0.33	0.37	0.38	0.46	0.68
X8	0.39	0.40	0.39	0.42	0.28	0.54

Covariance Matrix to be Analyzed

X7	X8
----	----

X7	1.00	
X8	0.65	1.00

PATH ANALYSIS FOR HAPPY MODEL GROUP1

Parameter Specifications

LAMBDA-Y

STUDY STUDENT HAPPY

Y1	0	0	0
Y2	1	0	0
Y3	2	0	0
Y4	3	0	0
Y5	4	0	0
Y6	0	0	0
Y7	0	5	0
Y8	0	6	0
Y9	0	7	0
Y10	0	0	0
Y11	0	0	8
Y12	0	0	9

LAMBDA-X

TEACHER FRIEND PARENT

X1	10	0	0
X2	11	0	0
X3	12	0	0
X4	0	13	0
X5	0	0	14
X6	0	0	15
X7	0	0	16
X8	0	0	17

BETA

STUDY STUDENT HAPPY

STUDY	0	0	0
STUDENT	18	0	0
HAPPY	19	20	0

GAMMA

TEACHER FRIEND PARENT

STUDY 21 0 0
 STUDENT 22 23 24
 HAPPY 25 26 27

PHI

TEACHER FRIEND PARENT

TEACHER 0
 FRIEND 28 0
 PARENT 29 30 0

PSI

Note: This matrix is diagonal.

STUDY STUDENT HAPPY

31 32 33
 THETA-EPS
 Y1 Y2 Y3 Y4 Y5 Y6
 Y1 34
 Y2 35 36
 Y3 37 38 39
 Y4 0 40 0 41
 Y5 42 43 0 44 45
 Y6 46 0 47 0 48 49
 Y7 0 0 50 0 0 51
 Y8 53 0 0 0 0 54
 Y9 0 0 0 56 0 0
 Y10 59 60 61 62 63 0
 Y11 67 68 69 0 70 0
 Y12 75 0 76 77 78 79

THETA-EPS

Y7 Y8 Y9 Y10 Y11 Y12

Y7 52
 Y8 0 55

Y9	0	57	58			
Y10	64	0	65	66		
Y11	71	0	72	73	74	
Y12	0	80	81	0	0	82

THETA-DELTA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
X1	0	0	0	83	0	0
X2	89	0	0	0	0	0
X3	0	0	0	0	0	0
X4	96	0	0	97	0	0
X5	0	0	101	0	0	0
X6	107	0	108	0	0	0
X7	0	0	0	114	115	0
X8	0	0	0	0	0	0

THETA-DELTA-EPS

	Y7	Y8	Y9	Y10	Y11	Y12
X1	0	84	85	86	87	0
X2	0	0	90	0	0	0
X3	92	0	93	0	0	0
X4	98	0	0	0	0	0
X5	0	102	0	103	104	0
X6	109	110	0	0	0	0
X7	116	0	0	0	0	0
X8	0	0	0	122	0	123

THETA-DELTA

	X1	X2	X3	X4	X5	X6
X1	88					
X2	0	91				
X3	0	94	95			
X4	99	100	0	0		
X5	0	0	105	0	106	

X6	0	111	0	0	112	113
X7	117	118	0	119	0	120
X8	0	0	0	0	124	125

THETA-DELTA

	X7	X8
	-----	-----
X7	121	
X8	126	127

PATH ANALYSIS FOR HAPPY MODEL GROUP1

Number of Iterations = 21

LISREL Estimates (Maximum Likelihood)

LAMBDA-Y

	STUDY	STUDENT	HAPPY
	-----	-----	-----
Y1	0.67	--	--
	(0.06)		
	13.60		
Y3	0.79	--	--
	(0.06)		
	13.48		
Y4	0.79	--	--
	(0.06)		
	12.73		
Y5	0.73	--	--
	(0.06)		
	11.88		
Y6	--	0.58	--
Y7	--	0.73	--
	(0.08)		
	9.01		
Y8	--	0.72	--
	(0.08)		

9.20
Y9 -- 0.60 --

(0.07)

8.49

Y10 -- -- 0.79

Y11 -- -- 0.77

(0.04)

19.38

Y12 -- -- 0.75

(0.05)

15.53

LAMBDA-X

TEACHER FRIEND PARENT

X1 0.83 -- --

(0.04)

20.24

X2 0.86 -- --

(0.04)

20.88

X3 0.82 -- --

(0.04)

19.49

X4 -- 1.00 --

(0.03)

28.98

X5 -- -- 0.49

(0.06)

8.49

X6 -- -- 0.71

(0.08)

8.95

X7 -- -- 0.94

(0.08)

12.34
 X8 -- -- 0.97
 (0.10)
 9.83

BETA

	STUDY	STUDENT	HAPPY
STUDY	--	--	--
STUDENT	0.23	--	--
	(0.11)		
	2.05		
HAPPY	0.42	0.17	--
	(0.14)	(0.08)	
	3.10	2.08	

GAMMA

	TEACHER	FRIEND	PARENT
STUDY	0.86	--	--
	(0.07)		
	12.64		
STUDENT	0.28	0.21	0.22
	(0.13)	(0.06)	(0.06)
	2.18	3.47	3.96
HAPPY	0.28	0.12	0.09
	(0.13)	(0.05)	(0.04)
	2.11	2.52	2.16

Covariance Matrix of ETA and KSI

	STUDY	STUDENT	HAPPY	TEACHER	FRIEND	PARENT
STUDY	1.00					
STUDENT	0.68	1.00				
HAPPY	0.87	0.78	1.00			

TEACHER	0.86	0.72	0.88	1.00		
FRIEND	0.51	0.59	0.63	0.59	1.00	
PARENT	0.42	0.55	0.55	0.49	0.42	1.00

PHI

TEACHER	FRIEND	PARENT
---------	--------	--------

TEACHER	1.00
---------	------

FRIEND	0.59	1.00
--------	------	------

(0.04)

15.59

PARENT	0.49	0.42	1.00
--------	------	------	------

(0.05) (0.05)

9.40 8.38

PSI

Note: This matrix is diagonal.

STUDY	STUDENT	HAPPY
-------	---------	-------

0.27	0.39	0.13
------	------	------

(0.05) (0.09) (0.04)

5.33 4.43 3.24

Squared Multiple Correlations for Structural Equations

STUDY	STUDENT	HAPPY
-------	---------	-------

0.73	0.61	0.87
------	------	------

Squared Multiple Correlations for Y - Variables

Y1	Y2	Y3	Y4	Y5	Y6
----	----	----	----	----	----

0.45	0.66	0.63	0.62	0.53	0.34
------	------	------	------	------	------

Squared Multiple Correlations for Y - Variables

Y7	Y8	Y9	Y10	Y11	Y12
----	----	----	-----	-----	-----

0.53	0.52	0.36	0.62	0.59	0.57
------	------	------	------	------	------

Squared Multiple Correlations for X - Variables

X1	X2	X3	X4	X5	X6
0.69	0.74	0.67	1.00	0.24	0.51

Squared Multiple Correlations for X - Variables

X7	X8
0.88	0.94

Goodness of Fit Statistics

Degrees of Freedom = 83

Minimum Fit Function Chi-Square = 41.20 (P = 1.00)

Normal Theory Weighted Least Squares Chi-Square = 40.89 (P = 1.00)

Estimated Non-centrality Parameter (NCP) = 0.0

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

Minimum Fit Function Value = 0.098

Population Discrepancy Function Value (F0) = 0.0

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

Root Mean Square Error of Approximation (RMSEA) = 0.0

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

P-Value for Test of Close Fit (RMSEA < 0.05) = 1.00

Expected Cross-Validation Index (ECVI) = 0.80

90 Percent Confidence Interval for ECVI = (0.80 ; 0.80)

ECVI for Saturated Model = 1.00

ECVI for Independence Model = 11.68

Chi-Square for Independence Model with 190 Degrees of Freedom = 4855.33

Independence AIC = 4895.33

Model AIC = 294.89

Saturated AIC = 420.00

Independence CAIC = 4996.13

Model CAIC = 935.01

Saturated CAIC = 1478.45

Normed Fit Index (NFI) = 0.99

Non-Normed Fit Index (NNFI) = 1.02

Parsimony Normed Fit Index (PNFI) = 0.43

Comparative Fit Index (CFI) = 1.00

Incremental Fit Index (IFI) = 1.01

Relative Fit Index (RFI) = 0.98

Critical N (CN) = 1179.62

Root Mean Square Residual (RMR) = 0.016

Standardized RMR = 0.016

Goodness of Fit Index (GFI) = 0.99

Adjusted Goodness of Fit Index (AGFI) = 0.98

Parsimony Goodness of Fit Index (PGFI) = 0.39

PATH ANALYSIS FOR HAPPY MODEL GROUP1

Fitted Covariance Matrix

	Y1	Y2	Y3	Y4	Y5	Y6
Y1	1.00					
Y2	0.58	1.00				
Y3	0.53	0.64	1.00			
Y4	0.53	0.57	0.63	1.00		
Y5	0.45	0.56	0.58	0.50	1.00	
Y6	0.30	0.32	0.29	0.31	0.24	1.00
Y7	0.33	0.40	0.33	0.39	0.36	0.29
Y8	0.30	0.39	0.39	0.38	0.36	0.33
Y9	0.27	0.33	0.32	0.43	0.30	0.35
Y10	0.59	0.62	0.59	0.58	0.55	0.35
Y11	0.52	0.52	0.50	0.53	0.49	0.34
Y12	0.51	0.53	0.48	0.48	0.46	0.41
X1	0.48	0.58	0.57	0.59	0.52	0.35
X2	0.53	0.59	0.58	0.58	0.54	0.36
X3	0.47	0.57	0.56	0.56	0.51	0.34

X4	0.44	0.41	0.40	0.45	0.37	0.34
X5	0.14	0.16	0.11	0.16	0.15	0.15
X6	0.26	0.24	0.18	0.24	0.22	0.23
X7	0.26	0.32	0.31	0.34	0.34	0.30
X8	0.27	0.33	0.32	0.32	0.30	0.31

Fitted Covariance Matrix

	Y7	Y8	Y9	Y10	Y11	Y12
Y7	0.99					
Y8	0.52	0.99				
Y9	0.44	0.58	1.00			
Y10	0.51	0.44	0.32	1.00		
Y11	0.49	0.43	0.32	0.72	1.00	
Y12	0.43	0.53	0.52	0.59	0.58	1.00
X1	0.43	0.50	0.51	0.54	0.49	0.55
X2	0.45	0.44	0.42	0.59	0.58	0.57
X3	0.38	0.42	0.41	0.57	0.55	0.54
X4	0.36	0.43	0.36	0.50	0.49	0.48
X5	0.19	0.26	0.16	0.13	0.12	0.20
X6	0.34	0.32	0.23	0.31	0.30	0.29
X7	0.43	0.37	0.31	0.40	0.39	0.39
X8	0.38	0.38	0.32	0.37	0.41	0.34

Fitted Covariance Matrix

	X1	X2	X3	X4	X5	X6
X1	1.00					
X2	0.71	1.00				
X3	0.68	0.75	1.00			
X4	0.46	0.48	0.48	1.00		
X5	0.20	0.20	0.23	0.20	0.99	
X6	0.29	0.27	0.29	0.30	0.44	0.99
X7	0.33	0.34	0.37	0.37	0.45	0.66
X8	0.39	0.40	0.39	0.40	0.28	0.54

Fitted Covariance Matrix

	X7	X8
X7	0.99	
X8	0.65	1.00

Fitted Residuals

	Y1	Y2	Y3	Y4	Y5	Y6
Y1	0.00					
Y2	0.00	0.00				
Y3	0.01	0.00	0.00			
Y4	0.02	0.00	0.00	0.00		
Y5	-0.01	0.00	0.00	0.00	0.00	
Y6	0.00	-0.01	-0.01	-0.01	0.00	0.00
Y7	0.01	0.03	0.01	0.03	0.01	0.00
Y8	0.01	-0.01	-0.03	0.01	0.02	0.00
Y9	0.03	0.00	-0.01	0.01	0.03	-0.01
Y10	0.00	0.01	0.01	0.01	0.00	-0.02
Y11	0.00	0.01	0.01	0.03	0.01	0.00
Y12	0.00	-0.02	-0.01	0.00	0.01	0.00
X1	-0.02	0.00	-0.01	-0.01	0.00	0.01
X2	-0.01	0.00	0.01	-0.01	0.00	-0.02
X3	0.00	0.01	0.02	-0.02	0.02	0.00
X4	0.02	0.01	0.03	0.01	-0.01	0.01
X5	0.03	0.03	0.00	0.01	-0.01	0.06
X6	0.02	0.04	0.01	0.03	0.03	0.04
X7	0.02	0.03	0.00	0.02	0.01	0.04
X8	0.05	0.05	0.02	0.05	0.01	0.03

Fitted Residuals

	Y7	Y8	Y9	Y10	Y11	Y12
Y7	0.01					
Y8	0.01	0.01				
Y9	0.01	0.01	0.00			

Y10	0.01	0.01	0.01	0.00		
Y11	0.01	-0.01	0.00	0.01	0.00	
Y12	0.01	0.01	0.01	0.00	-0.01	0.00
X1	-0.01	-0.01	0.01	0.00	-0.01	0.01
X2	0.01	0.00	0.01	-0.01	-0.02	0.00
X3	0.00	-0.04	-0.02	0.01	0.01	-0.02
X4	0.00	0.01	0.00	0.01	-0.01	0.02
X5	-0.01	0.02	0.04	-0.01	0.00	0.02
X6	-0.01	0.03	0.05	0.00	-0.01	0.03
X7	-0.01	0.02	0.01	-0.01	0.03	0.02
X8	-0.03	0.00	0.01	0.01	0.03	0.02

Fitted Residuals

	X1	X2	X3	X4	X5	X6
X1	0.00					
X2	0.01	0.00				
X3	0.00	0.00	0.00			
X4	0.00	-0.01	-0.01	0.00		
X5	-0.02	-0.02	-0.02	0.00	0.01	
X6	-0.03	-0.02	-0.02	0.01	0.01	0.01
X7	-0.02	-0.02	-0.01	0.01	0.01	0.01
X8	0.00	-0.01	0.00	0.01	0.00	0.00

Fitted Residuals

	X7	X8
X7	0.01	
X8	0.01	0.00

Summary Statistics for Fitted Residuals

Smallest Fitted Residual = -0.04

Median Fitted Residual = 0.00

Largest Fitted Residual = 0.06

Stemleaf Plot

- 3|9
 - 3|
 - 2|977
 - 2|32210
 - 1|9999996655
 - 1|4444443222110
 - 0|9998888777666555555
 - 0|4443322222211111100000000
 0|1111122222233334444
 0|55555555556667777778888889999
 1|000011111222233334444
 1|556666688
 2|1123344
 2|55566777788899
 3|13
 3|7
 4|144
 4|568
 5|4
 5|
 6|0

Standardized Residuals

	Y1	Y2	Y3	Y4	Y5	Y6
Y1	-0.01					
Y2	-0.23	0.02				
Y3	1.10	-0.36	-0.43			
Y4	1.04	0.43	-0.18	0.37		
Y5	-0.68	0.39	-0.35	0.15	0.20	
Y6	-0.14	-0.48	-0.77	-0.46	-0.16	1.10
Y7	0.38	1.09	0.35	1.20	0.29	0.16
Y8	0.49	-0.55	-1.13	0.29	0.80	0.58
Y9	0.86	-0.03	-0.39	0.30	0.79	-0.31
Y10	0.05	0.68	0.91	1.84	0.26	-0.58

Y11	0.04	0.97	1.66	1.82	0.76	0.10
Y12	0.02	-1.26	-0.73	0.40	0.50	-0.05
X1	-0.93	-0.29	-0.49	-1.23	-0.12	0.26
X2	-0.78	-0.07	0.92	-0.71	0.15	-0.72
X3	0.03	0.85	0.94	-0.89	1.14	-0.03
X4	1.30	0.47	1.13	1.05	-0.48	0.46
X5	0.67	0.71	-0.19	0.19	-0.21	1.60
X6	0.89	1.21	0.24	0.79	0.79	1.29
X7	0.62	1.10	-0.15	0.88	0.36	1.26
X8	1.57	1.54	0.54	1.51	0.30	1.01

Standardized Residuals

	Y7	Y8	Y9	Y10	Y11	Y12

Y7	1.42					
Y8	1.18	1.25				
Y9	0.65	1.12	0.57			
Y10	-0.78	0.48	0.79	0.75		
Y11	0.44	-0.57	0.33	1.03	1.03	
Y12	0.60	0.82	1.05	0.06	-0.52	-0.05
X1	-0.26	-0.61	0.75	-0.56	-0.69	0.47
X2	0.54	0.17	0.84	-0.46	-1.00	-0.29
X3	-0.21	-1.72	-1.22	0.50	0.50	-1.03
X4	-0.15	0.45	0.03	0.50	-0.68	0.84
X5	-0.37	1.13	1.20	-0.29	-0.14	0.71
X6	-0.60	1.45	1.44	-0.11	-0.37	0.92
X7	-0.97	0.70	0.19	-0.37	1.21	0.77
X8	-1.23	-0.04	0.26	0.78	1.21	1.63

Standardized Residuals

	X1	X2	X3	X4	X5	X6

X1	0.34					
X2	1.54	0.57				
X3	-0.45	-0.10	-0.18			
X4	-0.52	-1.52	-0.96	1.33		

X5	-0.63	-0.78	-1.10	-0.04	0.80	
X6	-1.03	-1.23	-0.81	0.54	0.93	0.61
X7	-1.24	-1.18	-0.31	0.81	0.70	1.21
X8	0.01	-0.36	0.08	1.14	0.30	0.52

Standardized Residuals

	X7	X8
X7	0.97	
X8	0.75	0.61

Summary Statistics for Standardized Residuals

Smallest Standardized Residual = -1.72

Median Standardized Residual = -0.32

Largest Standardized Residual = 1.84

Stemleaf Plot

```

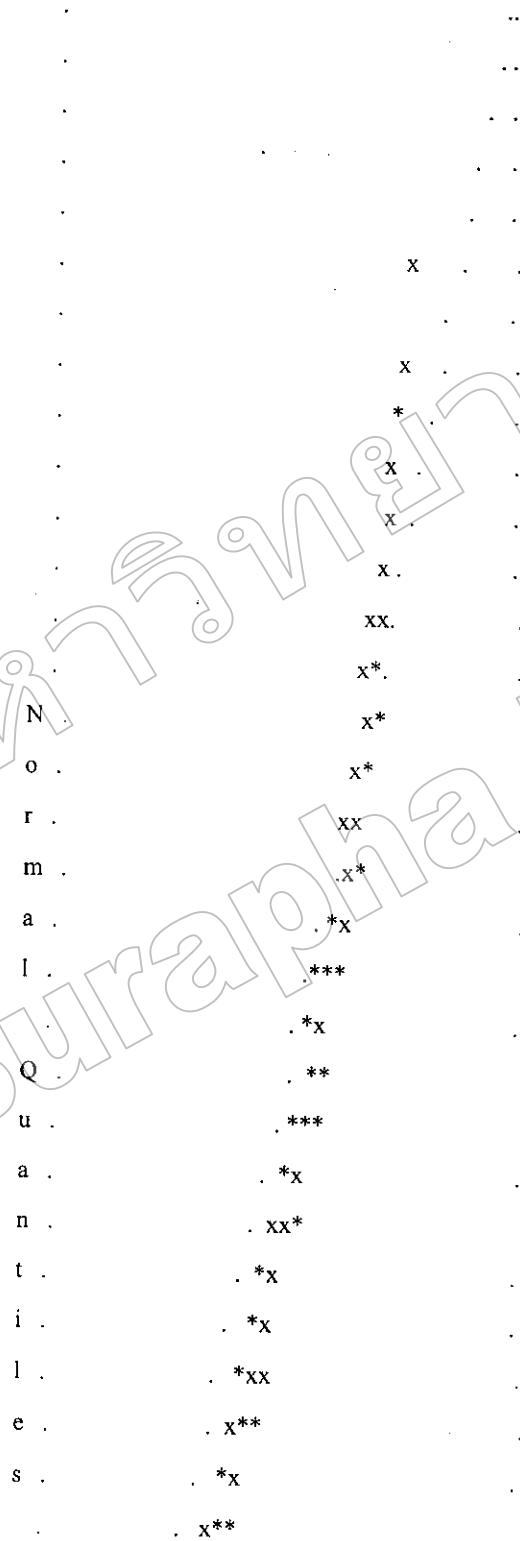
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-12|643332
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-6|887321988310
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-0|988655442107544331
0|12233455680556799
2|04666990003456789
4|03456778900002444778
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8|00124456891223477
10|1334559000233448
12|00111156903
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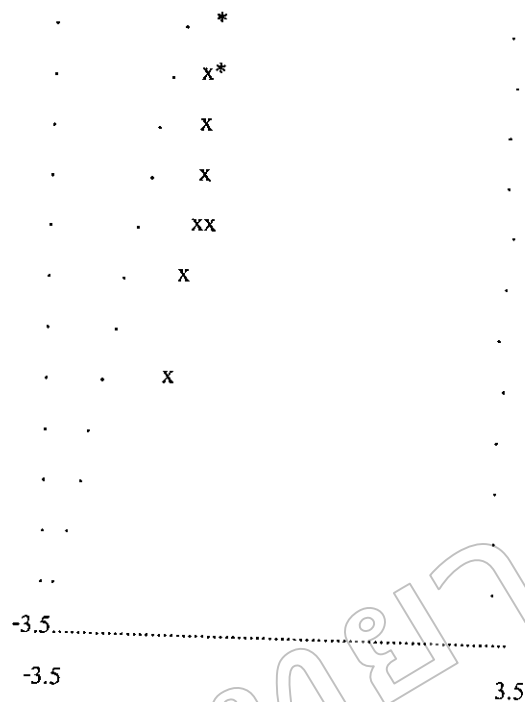
```

PATH ANALYSIS FOR HAPPY MODEL GROUP1

Qplot of Standardized Residuals

3.5.....





Standardized Residuals PATH ANALYSIS FOR HAPPY MODEL GROUP1

Modification Indices and Expected Change

Modification Indices for LAMBDA-Y

	STUDY	STUDENT	HAPPY
Y1	--	0.21	0.08
Y2	--	0.09	0.19
Y3	--	0.44	0.06
Y4	--	0.63	1.22
Y5	--	0.27	0.01
Y6	0.44	--	0.05
Y7	0.81	--	0.25
Y8	0.82	--	0.57
Y9	0.50	--	0.35
Y10	0.21	0.00	--
Y11	0.49	0.05	--
Y12	1.43	0.16	--

Expected Change for LAMBDA-Y

STUDY STUDENT HAPPY

Y1	--	0.04	0.05
Y2	--	0.02	0.08
Y3	--	-0.05	0.04
Y4	--	0.06	0.20
Y5	--	0.04	-0.02
Y6	-0.06	--	-0.03
Y7	0.08	--	0.08
Y8	-0.07	--	-0.10
Y9	0.05	--	0.07
Y10	0.09	0.00	--
Y11	0.11	-0.02	--
Y12	-0.21	0.05	--

Standardized Expected Change for LAMBDA-Y

STUDY STUDENT HAPPY

Y1	--	0.04	0.05
Y2	--	0.02	0.08
Y3	--	-0.05	0.04
Y4	--	0.06	0.20
Y5	--	0.04	-0.02
Y6	-0.06	--	-0.03
Y7	0.08	--	0.08
Y8	-0.07	--	-0.10
Y9	0.05	--	0.07
Y10	0.09	0.00	--
Y11	0.11	-0.02	--
Y12	-0.21	0.05	--

Modification Indices for LAMBDA-X

TEACHER FRIEND PARENT

X1	--	0.01	0.40
----	----	------	------

X2	--	0.26	0.83
X3	--	0.34	0.05
X4	--	--	--
X5	0.30	0.21	--
X6	0.47	0.08	--
X7	0.00	0.00	--
X8	0.76	0.00	--

Expected Change for LAMBDA-X

	TEACHER	FRIEND	PARENT
	-----	-----	-----
X1	--	-0.02	-0.02
X2	--	-0.07	-0.03
X3	--	-0.03	-0.01
X4	--	--	--
X5	-0.06	-0.03	--
X6	-0.06	0.02	--
X7	0.00	0.02	--
X8	0.09	0.00	--

Standardized Expected Change for LAMBDA-X

	TEACHER	FRIEND	PARENT
	-----	-----	-----
X1	--	-0.02	-0.02
X2	--	-0.07	-0.03
X3	--	-0.03	-0.01
X4	--	--	--
X5	-0.06	-0.03	--
X6	-0.06	0.02	--
X7	0.00	0.02	--
X8	0.09	0.00	--

Modification Indices for BETA

	STUDY	STUDENT	HAPPY
	-----	-----	-----
STUDY	--	3.69	3.52
STUDENT	--	--	--

HAPPY -- -- --

Expected Change for BETA

STUDY STUDENT HAPPY

STUDY -- 0.27 0.41
STUDENT -- -- --
HAPPY -- -- --

Standardized Expected Change for BETA

STUDY STUDENT HAPPY

STUDY -- 0.27 0.41
STUDENT -- -- --
HAPPY -- -- --

Modification Indices for GAMMA

TEACHER FRIEND PARENT

STUDY -- 0.68 3.57
STUDENT -- -- --
HAPPY -- -- --

Expected Change for GAMMA

TEACHER FRIEND PARENT

STUDY -- 0.05 0.07
STUDENT -- -- --
HAPPY -- -- --

Standardized Expected Change for GAMMA

TEACHER FRIEND PARENT

STUDY -- 0.05 0.07
STUDENT -- -- --
HAPPY -- -- --

No Non-Zero Modification Indices for PHI

No Non-Zero Modification Indices for PSI

Modification Indices for THETA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
Y1	--					
Y2	--	--				
Y3	--	--	--			
Y4	0.54	--	0.07	--		
Y5	--	--	0.16	--	--	
Y6	--	0.11	--	0.30	--	--
Y7	0.13	0.61	--	0.29	0.26	--
Y8	--	0.43	1.09	0.08	1.06	--
Y9	0.62	0.04	0.01	--	0.26	0.28
Y10	--	--	--	--	--	0.29
Y11	--	--	--	1.32	--	0.24
Y12	--	1.32	--	--	--	--

Modification Indices for THETA-EPS

	Y7	Y8	Y9	Y10	Y11	Y12
Y7	--					
Y8	0.12	--				
Y9	0.00	--	--			
Y10	--	0.55	--	--		
Y11	--	0.51	--	--	--	
Y12	0.00	--	--	0.07	0.07	--

Expected Change for THETA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
Y1	--					
Y2	--	--				
Y3	--	--	--			
Y4	0.03	--	-0.01	--		
Y5	--	--	-0.02	--	--	
Y6	--	-0.01	--	-0.02	--	--
Y7	-0.01	0.02	--	0.02	-0.02	--

Y8	--	-0.02	-0.03	0.01	0.03	--
Y9	0.02	0.00	0.00	--	0.01	-0.02
Y10	--	--	--	--	--	-0.01
Y11	--	--	--	0.04	--	0.01
Y12	--	-0.04	--	--	--	--

Expected Change for THETA-EPS

	Y7	Y8	Y9	Y10	Y11	Y12
Y7	--					
Y8	0.02	--				
Y9	0.00	--	--			
Y10	--	0.02	--	--		
Y11	--	-0.02	--	--	--	
Y12	0.00	--	--	0.01	-0.01	--

Modification Indices for THETA-DELTA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
X1	1.33	0.01	0.16	--	0.15	0.47
X2	--	0.17	0.53	0.34	0.04	0.53
X3	0.00	0.27	0.07	0.77	0.72	0.20
X4	--	0.00	1.50	--	1.04	0.04
X5	0.44	0.22	--	0.00	0.41	0.76
X6	--	0.26	--	0.00	1.25	0.03
X7	0.28	0.04	0.14	--	--	0.07
X8	1.13	0.14	0.06	0.66	0.32	0.00

Modification Indices for THETA-DELTA-EPS

	Y7	Y8	Y9	Y10	Y11	Y12
X1	0.40	--	--	--	--	0.79
X2	0.48	0.87	--	0.06	0.64	0.03
X3	--	2.02	--	0.09	0.49	0.68
X4	--	0.16	0.35	0.09	0.86	0.60
X5	0.28	--	0.83	--	--	0.00
X6	--	--	1.32	0.10	1.47	0.00

X7	--	0.39	1.03	1.53	1.81	0.01
----	----	------	------	------	------	------

X8	1.56	0.04	0.01	--	0.24	--
----	------	------	------	----	------	----

Expected Change for THETA-DELTA-EPS

	Y1	Y2	Y3	Y4	Y5	Y6
-----	-----	-----	-----	-----	-----	-----
X1	-0.03	0.00	-0.01	--	-0.01	0.02
X2	--	-0.01	0.01	-0.01	0.00	-0.02
X3	0.00	0.01	0.01	-0.02	0.02	0.01
X4	--	0.00	0.03	--	-0.03	0.01
X5	0.02	0.01	--	0.00	-0.02	0.03
X6	--	0.01	--	0.00	0.03	0.01
X7	-0.01	0.00	-0.01	--	--	0.01
X8	0.03	0.01	-0.01	0.02	-0.02	0.00

Expected Change for THETA-DELTA-EPS

	Y7	Y8	Y9	Y10	Y11	Y12
-----	-----	-----	-----	-----	-----	-----
X1	-0.02	--	--	--	--	0.02
X2	0.02	0.02	--	0.00	-0.02	0.00
X3	--	-0.03	--	0.01	0.01	-0.02
X4	--	0.01	-0.02	0.01	-0.02	0.03
X5	-0.02	--	0.03	--	--	0.00
X6	--	--	0.03	0.01	-0.03	0.00
X7	--	0.02	-0.02	-0.03	0.03	0.00
X8	-0.05	-0.01	0.00	--	0.01	--

Modification Indices for THETA-DELTA

	X1	X2	X3	X4	X5	X6
-----	-----	-----	-----	-----	-----	-----
X1	--					
X2	1.35	--				
X3	0.01	--	--			
X4	--	--	0.11	--		
X5	0.06	0.31	--	0.15	--	
X6	1.13	--	0.20	0.15	--	--
X7	--	--	0.12	--	--	--

X8 0.06 0.50 0.00 0.03 -- --

Modification Indices for THETA-DELTA

X7 X8

X7 --

X8 -- --

Expected Change for THETA-DELTA

X1 X2 X3 X4 X5 X6

X1 --

X2 0.03 --

X3 0.00 -- --

X4 -- -- -0.01 --

X5 -0.01 -0.02 -- -0.01 --

X6 -0.03 -- -0.01 0.01 -- --

X7 -- -- 0.01 -- -- --

X8 0.01 -0.02 0.00 -0.01 -- --

Expected Change for THETA-DELTA

X7 X8

X7 --

X8 -- --

Maximum Modification Index is 3.69 for Element (1, 2) of BETA

PATH ANALYSIS FOR HAPPY MODEL GROUP1

Factor Scores Regressions

ETA

Y1 Y2 Y3 Y4 Y5 Y6

STUDY 0.07 0.25 0.19 0.28 0.20 0.03

STUDENT -0.01 0.03 0.08 -0.02 0.04 0.25

HAPPY -0.08 0.09 0.10 0.09 0.05 0.03

ETA

	Y7	Y8	Y9	Y10	Y11	Y12
STUDY	0.07	0.02	-0.10	-0.12	0.09	0.12
STUDENT	0.33	0.26	0.10	0.01	0.03	-0.07
HAPPY	0.05	-0.01	-0.06	0.14	0.18	0.23

ETA

	X1	X2	X3	X4	X5	X6
STUDY	0.06	0.04	0.06	-0.03	0.01	0.02
STUDENT	-0.03	0.04	0.07	0.14	0.01	-0.02
HAPPY	0.13	0.07	0.03	0.11	0.04	0.00

ETA

	X7	X8
STUDY	-0.06	0.02
STUDENT	0.03	0.07
HAPPY	0.00	0.09

KSI

	Y1	Y2	Y3	Y4	Y5	Y6
TEACHER	-0.04	-0.06	0.06	0.06	0.04	0.02
FRIEND	-0.18	0.04	0.05	-0.11	-0.01	0.00
PARENT	-0.02	-0.01	0.01	-0.05	-0.07	-0.03

KSI

	Y7	Y8	Y9	Y10	Y11	Y12
TEACHER	0.06	0.00	-0.12	-0.01	0.07	0.09
FRIEND	0.10	-0.06	-0.02	0.01	0.01	0.02
PARENT	-0.09	-0.04	0.00	0.10	-0.03	0.05

KSI

	X1	X2	X3	X4	X5	X6
TEACHER	0.30	0.27	0.19	0.08	-0.01	0.00

FRIEND	0.09	0.06	-0.04	1.03	-0.01	-0.01
PARENT	0.05	0.06	-0.07	-0.02	0.09	0.02

KSI

X7 X8

TEACHER	0.05	0.00
FRIEND	0.04	-0.04
PARENT	0.52	0.65

PATH ANALYSIS FOR HAPPY MODEL GROUP1

Standardized Solution

LAMBDA-Y

STUDY STUDENT HAPPY

Y1	0.67	--	--
Y2	0.81	--	--
Y3	0.79	--	--
Y4	0.79	--	--
Y5	0.73	--	--
Y6	--	0.58	--
Y7	--	0.73	--
Y8	--	0.72	--
Y9	--	0.60	--
Y10	--	--	0.79
Y11	--	--	0.77
Y12	--	--	0.75

LAMBDA-X

TEACHER FRIEND PARENT

X1	0.83	--	--
X2	0.86	--	--
X3	0.82	--	--
X4	--	1.00	--
X5	--	--	0.49

X6 -- -- 0.71

X7 -- -- 0.94

X8 -- -- 0.97

BETA

STUDY STUDENT HAPPY

STUDY -- -- --
STUDENT 0.23 -- --
HAPPY 0.42 0.17 --

GAMMA

TEACHER FRIEND PARENT

STUDY 0.86 -- --
STUDENT 0.28 0.21 0.22
HAPPY 0.28 0.12 0.09

Correlation Matrix of ETA and KSI

STUDY STUDENT HAPPY TEACHER FRIEND PARENT

STUDY 1.00
STUDENT 0.68 1.00
HAPPY 0.87 0.78 1.00
TEACHER 0.86 0.72 0.88 1.00
FRIEND 0.51 0.59 0.63 0.59 1.00
PARENT 0.42 0.55 0.55 0.49 0.42 1.00

PSI

Note: This matrix is diagonal.

STUDY STUDENT HAPPY

0.27 0.39 0.13

Regression Matrix ETA on KSI (Standardized)

TEACHER FRIEND PARENT

STUDY 0.86 -- --

STUDENT	0.48	0.21	0.22
HAPPY	0.72	0.16	0.13

PATH ANALYSIS FOR HAPPY MODEL GROUP1

Total and Indirect Effects

Total Effects of KSI on ETA

	TEACHER	FRIEND	PARENT
STUDY	0.86	--	--
	(0.07)		
	12.64		
STUDENT	0.48	0.21	0.22
	(0.08)	(0.06)	(0.06)
	6.36	3.47	3.96
HAPPY	0.72	0.16	0.13
	(0.06)	(0.05)	(0.04)
	11.30	3.39	3.05

Indirect Effects of KSI on ETA

	TEACHER	FRIEND	PARENT
STUDY	--	--	--
STUDENT	0.20	--	--
	(0.10)		
	2.05		
HAPPY	0.44	0.04	0.04
	(0.11)	(0.02)	(0.02)
	3.87	1.80	1.95

Total Effects of ETA on ETA

	STUDY	STUDENT	HAPPY
STUDY	--	--	--
STUDENT	0.23	--	--
	(0.11)		

2.05

HAPPY 0.46 0.17 --

(0.14) (0.08)

3.35 2.08

Largest Eigenvalue of $B*B'$ (Stability Index) is 0.254

Indirect Effects of ETA on ETA

STUDY STUDENT HAPPY

STUDY	--	--	--
STUDENT	--	--	--
HAPPY	0.04	--	--
	(0.03)		

1.49

Total Effects of ETA on Y

STUDY STUDENT HAPPY

Y1	0.67	--	--
Y2	0.81	--	--
	(0.06)		

13.60

Y3	0.79	--	--
	(0.06)		

13.48

Y4	0.79	--	--
	(0.06)		

12.73

Y5	0.73	--	--
	(0.06)		

11.88

Y6	0.13	0.58	--
	(0.07)		

2.05

Y7	0.17	0.73	--
----	------	------	----

	(0.08)	(0.08)	
	2.07	9.01	
Y8	0.17	0.72	--
	(0.08)	(0.08)	
	2.07	9.20	
Y9	0.14	0.60	--
	(0.07)	(0.07)	
	2.07	8.49	
Y10	0.36	0.13	0.79
	(0.11)	(0.06)	
	3.35	2.08	
Y11	0.35	0.13	0.77
	(0.10)	(0.06)	(0.04)
	3.39	2.07	19.38
Y12	0.35	0.13	0.75
	(0.10)	(0.06)	(0.05)
	3.38	2.07	15.53

Indirect Effects of ETA on Y

	STUDY	STUDENT	HAPPY
Y1	--	--	--
Y2	--	--	--
Y3	--	--	--
Y4	--	--	--
Y5	--	--	--
Y6	0.13	--	--
	(0.07)		
	2.05		
Y7	0.17	--	--
	(0.08)		
	2.07		
Y8	0.17	--	--
	(0.08)		
	2.07		

Y9	0.14	--	--
	(0.07)		
	2.07		
Y10	0.36	0.13	--
	(0.11)	(0.06)	
	3.35	2.08	
Y11	0.35	0.13	--
	(0.10)	(0.06)	
	3.39	2.07	
Y12	0.35	0.13	--
	(0.10)	(0.06)	
	3.38	2.07	
Total Effects of KSI on Y			
	TEACHER	FRIEND	PARENT
Y1	0.57	--	--
	(0.05)		
	12.64		
Y2	0.69	--	--
	(0.04)		
	15.73		
Y3	0.68	--	--
	(0.04)		
	15.38		
Y4	0.68	--	--
	(0.04)		
	15.40		
Y5	0.63	--	--
	(0.04)		
	14.19		
Y6	0.28	0.12	0.13
	(0.04)	(0.04)	(0.03)
	6.36	3.47	3.96
Y7	0.35	0.16	0.16

	(0.05)	(0.04)	(0.04)
	7.00	3.51	4.05
Y8	0.35	0.15	0.16
	(0.05)	(0.04)	(0.04)
	6.83	3.60	4.03
Y9	0.29	0.13	0.13
	(0.05)	(0.04)	(0.03)
	6.26	3.55	4.03
Y10	0.57	0.12	0.10
	(0.05)	(0.04)	(0.03)
	11.30	3.39	3.05
Y11	0.55	0.12	0.10
	(0.05)	(0.04)	(0.03)
	11.18	3.37	3.05
Y12	0.54	0.12	0.10
	(0.05)	(0.03)	(0.03)
	11.23	3.37	3.01

PATH ANALYSIS FOR HAPPY MODEL GROUP1

Standardized Total and Indirect Effects

Standardized Total Effects of KSI on ETA

	TEACHER	FRIEND	PARENT
STUDY	0.86	--	--
STUDENT	0.48	0.21	0.22
HAPPY	0.72	0.16	0.13

Standardized Indirect Effects of KSI on ETA

	TEACHER	FRIEND	PARENT
STUDY	--	--	--
STUDENT	0.20	--	--
HAPPY	0.44	0.04	0.04

Standardized Total Effects of ETA on ETA

STUDY STUDENT HAPPY

STUDY	--	--	--
STUDENT	0.23	--	--
HAPPY	0.46	0.17	--

Standardized Indirect Effects of ETA on ETA

STUDY STUDENT HAPPY

STUDY	--	--	--
STUDENT	--	--	--
HAPPY	0.04	--	--

Standardized Total Effects of ETA on Y

STUDY STUDENT HAPPY

Y1	0.67	--	--
Y2	0.81	--	--
Y3	0.79	--	--
Y4	0.79	--	--
Y5	0.73	--	--
Y6	0.13	0.58	--
Y7	0.17	0.73	--
Y8	0.17	0.72	--
Y9	0.14	0.60	--
Y10	0.36	0.13	0.79
Y11	0.35	0.13	0.77
Y12	0.35	0.13	0.75

Standardized Indirect Effects of ETA on Y

STUDY STUDENT HAPPY

Y1	--	--	--
Y2	--	--	--
Y3	--	--	--
Y4	--	--	--

Y5	--	--	--
Y6	0.13	--	--
Y7	0.17	--	--
Y8	0.17	--	--
Y9	0.14	--	--
Y10	0.36	0.13	--
Y11	0.35	0.13	--
Y12	0.35	0.13	--

Standardized Total Effects of KSI on Y

TEACHER FRIEND PARENT

Y1	0.57	--	--
Y2	0.69	--	--
Y3	0.68	--	--
Y4	0.68	--	--
Y5	0.63	--	--
Y6	0.28	0.12	0.13
Y7	0.35	0.16	0.16
Y8	0.35	0.15	0.16
Y9	0.29	0.13	0.13
Y10	0.57	0.12	0.10
Y11	0.55	0.12	0.10
Y12	0.54	0.12	0.10

The Problem used 186448 Bytes (= 0.3% of Available Workspace)

Time used: 0.651 Seconds