ภาคผนวก ค

ผลการวิเคราะห์โมเดลความสัมพันธ์เชิงสาเหตุของแบบการเรียนแบบร่วมมือของนักเรียนชั้นมัธยมศึกษาปีที่ 6 ที่ปรับแก้

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BY

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The following lines were read from file D:\แบบการเรียน\colla4.spl:

PATH ANALYSIS FOR COLLABORATIVE LEARNING STYLE MODEL
DA NI=14 NO=1000 MA=KM
LA
'Y1' 'Y2' 'Y3' 'Y4' 'Y5' 'Y6' 'X1' 'X2' 'X3' 'X4' 'X5' 'X6' 'X7' 'X8'
KM
1.000
.478 1.000
.357 .627 1.000
.200 .543 .617 1.000
.383 .575 .618 .589 1.000
.515 .430 .400 .333 .405 1.000
.243 .298 .253 .217 .247 .299 1.000
.394 .272 .271 .191 .305 .391 .589 1.000
.289 .332 .342 .252 .328 .360 .554 .575 1.000
.063 .296 .382 .374 .326 .250 .241 .121 .551 1.000
-.136 .295 .399 .464 .362 .091 -.014 -.121 .074 .490 1.000
.177 .245 .343 .291 .281 .294 .261 .293 .280 .217 .198 1.000
.160 .243 .375 .343 .299 .303 .252 .287 .244 .277 .270 .642 1.000
.277 .211 .248 .160 .187 .404 .274 .391 .272 .086 -.021 .420 .420 1.000

```
SD
3.50 3.02 2.83 2.89 2.63 4.74 11.48 6.42 6.02 6.29 6.55 11.06 6.85 4.65
MO NY= 6 NX=8 NE=2 NK= 2 C
LX=FU,FI LY=FU,FI BE=FU,FI GA=FU,FR PH=DI,FR PS=DI,FR TE=SY,FI TD=SY,FI
FR LY(2,1) LY(3,1) LY(4,1) LY(5,1) LX(1,1) LX(2,1) LX(3,1) LX(4,1) LX(5,1) LX(6,2) LX(7,2) C
LX(8,2) BE(2,1)
FR TE(1,1) TE(2,2) TE(3,3) TE(4,4) TE(5,5)
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)
ST 0 TE(6,6)
ST 1 LY(1,1) LY(6,2)
FR TE(4,1) TE(3,1) TE(5,1) TE(2,1) TE(6,2) TE(5,4) TE(4,3) TE(5,2) TE(6,4)
FR TD(5,4) TD(4,3) TD(4,2) TD(8,2) TD(3,1) TD(5,3) TD(7,2) TD(7,4) TD(7,5) TD(2,1) TD(6,2) TD(6,5) TD(8,3) C
TD(8,1) TD(6,4) TD(7,1) TD(6,1) TD(6,3) TD(7,3) TD(8,4) TD(5,1)
FR TH(5,1) TH(8,6) TH(4,1) TH(5,4) TH(5,3) TH(4,4) TH(2,2) TH(4,3) TH(5,2) TH(5,5) TH(1,1) TH(4,5) TH(5,6) C
TH(4,2) TH(4,6) TH(3,1) TH(3,3) TH(2,4) TH(7,1) TH(8,1) TH(6,1) TH(2,3) TH(7,2) TH(7,4) TH(1,2) TH(3,5) TH(6,2) C
TH(3,2) TH(8,3) TH(7,3) TH(6,5) TH(6,6)
LE
'MOTIVAT' 'COLLA'
LK
'FAMILY' 'ENVIRON'
OU SE TV EF SS MI RS FS ND=3 AD=OFF
```

PATH ANALYSIS FOR COLLABORATIVE LEARNING STYLE MODEL

Number of Input Variables 14
Number of Y - Variables 6
Number of X - Variables 8
Number of ETA - Variables 2
Number of KSI - Variables 2
Number of Observations 1000

PATH ANALYSIS FOR COLLABORATIVE LEARNING STYLE MODEL

Number of Iterations = 28

LISREL Estimates (Maximum Likelihood)

LAMBDA-Y

	MOTIVAT	COLLA
Y1	1.000	- -

Y2 0.808 --

(0.058)

13.927

Y3 0.804 --

(0.056)

14.294

Y4 0.695 --

(0.054)

12.837

Y5 0.795 --

(0.055)

14.549

Y6 -- 1.000

LAMBDA-X

FAMILY ENVIRON

-------- --------

X1 0.616 --

(0.047)

12.983

X2 0.787 --

(0.037)

21.385

X3 0.732 --

(0.036)

20.454

X4 0.391 --

(0.049)

7.958

X5 -0.145 --

(0.035)

-4.154

X6 -- 0.813
(0.033)
24.317

X7 -- 0.792
(0.032)
24.749

X8 -- 0.527
(0.031)
16.802

BETA

	MOTIVAT	COLLA
MOTIVAT	--	--
COLLA	0.148	--
	(0.069)	
	2.148	

GAMMA

	FAMILY	ENVIRON
MOTIVAT	0.502	0.505
	(0.035)	(0.041)
	14.487	12.402
COLLA	0.422	0.314
	(0.057)	(0.060)
	7.441	5.230

Squared Multiple Correlations for Structural Equations

MOTIVAT	COLLA
0.520	0.406

Squared Multiple Correlations for Y - Variables

Y1	Y2	Y3	Y4	Y5	Y6
0.975	0.634	0.627	0.469	0.613	1.000

Squared Multiple Correlations for X - Variables

X1	X2	X3	X4	X5	X6
0.380	0.619	0.536	0.153	0.021	0.659

Squared Multiple Correlations for X - Variables

X7	X8
0.626	0.277

Goodness of Fit Statistics

Degrees of Freedom = 11

Minimum Fit Function Chi-Square = 3.382 (P = 0.985)

Normal Theory Weighted Least Squares Chi-Square = 3.407 (P = 0.984)

Estimated Non-centrality Parameter (NCP) = 0.0

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

Minimum Fit Function Value = 0.00339

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) = 0.199

90 Percent Confidence Interval for ECVI = (0.199 ; 0.199)

ECVI for Saturated Model = 0.210

ECVI for Independence Model = 6.275

Chi-Square for Independence Model with 91 Degrees of Freedom = 6240.982

Independence AIC = 6268.982

Model AIC = 191.407

Saturated AIC = 210.000

Independence CAIC = 6351.690

Model CAIC = 746.736

Saturated CAIC = 830.314

Normed Fit Index (NFI) = 0.999

Non-Normed Fit Index (NNFI) = 1.010

Parsimony Normed Fit Index (PNFI) = 0.121

Comparative Fit Index (CFI) = 1.000

Incremental Fit Index (IFI) = 1.001

Relative Fit Index (RFI) = 0.996

Critical N (CN) = 7305.441

Root Mean Square Residual (RMR) = 0.00633

Standardized RMR = 0.00632

Goodness of Fit Index (GFI) = 1.00

Adjusted Goodness of Fit Index (AGFI) = 0.995

Parsimony Goodness of Fit Index (PGFI) = 0.105

Summary Statistics for Standardized Residuals

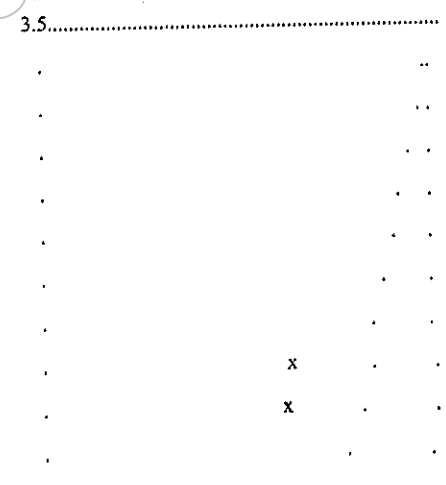
Smallest Standardized Residual = -1.276

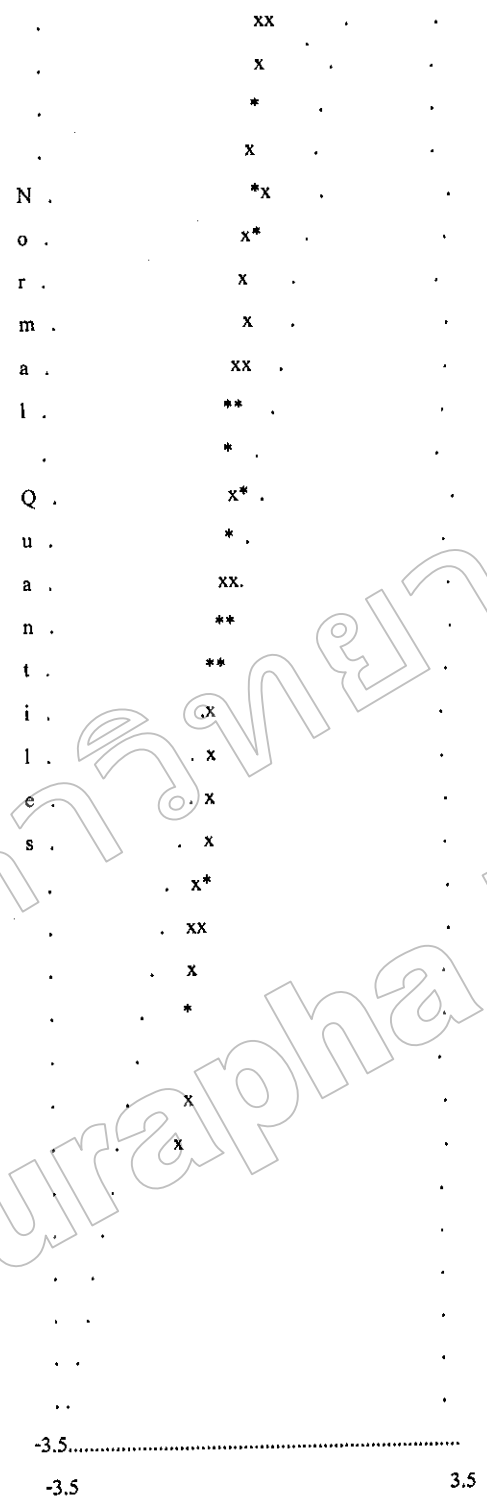
Median Standardized Residual = -0.287

Largest Standardized Residual = 0.901

PATH ANALYSIS FOR COLLABORATIVE LEARNING STYLE MODEL

Qplot of Standardized Residuals





Correlation Matrix of ETA and KSI

	MOTIVAT	COLLA	FAMILY	ENVIRON

MOTIVAT	1.000		
COLLA	0.520	1.000	
FAMILY	0.508	0.495	1.000
ENVIRON	0.512	0.388	-- 1.000

PATH ANALYSIS FOR COLLABORATIVE LEARNING STYLE MODEL

Total and Indirect Effects

Total Effects of KSI on ETA

	FAMILY	ENVIRON
MOTIVAT	0.502	0.505
	(0.035)	(0.041)
	14.487	12.402
COLLA	0.496	0.388
	(0.034)	(0.037)
	14.442	10.484

Indirect Effects of KSI on ETA

	FAMILY	ENVIRON
MOTIVAT	--	--
COLLA	0.074	0.075
	(0.032)	(0.032)
	2.296	2.301

Total Effects of ETA on ETA

	MOTIVAT	COLLA
MOTIVAT	--	--
COLLA	0.148	--
	(0.069)	
	2.148	

Time used: 1.422 Seconds