

ภาคผนวก ข

ผลการวิเคราะห์มาตรฐานวัดสมรรถนะครูปฐมวัยศูนย์พัฒนาเด็กเล็ก: การวิเคราะห์หุระดับด้วย
โปรแกรม Mplus

Mplus VERSION 5.21

MUTHEN & MUTHEN

01/13/2013 1:12 PM

INPUT INSTRUCTIONS

TITLE: MCFA

DATA:

FILE IS "C:\Documents and Settings\Administrator\Desktop\dataa.csv";

VARIABLE:

NAMES ARE pro di sy cr re et;

USEVARIABLES ARE pro di sy cr re et;

CLUSTER IS pro;

ANALYSIS:

TYPE IS TWOLEVEL;

ESTIMATOR IS MLR;

ITERATIONS = 1000;

CONVERGENCE = 0.000001;

Model:

%WITHIN%

FW by di sy cr re et;

ET WITH RE;

SY WITH DI;

ET WITH DI;

%BETWEEN%

FB by di sy cr re et;

RE WITH SY;

OUTPUT: SAMPSTAT RESIDUAL STANDARDIZED MODINDICES(5);

SAVEDATA:

RESULTS IS C:\Documents and Settings\Administrator\Desktop;

INPUT READING TERMINATED NORMALLY

MCFA

SUMMARY OF ANALYSIS

Number of groups	1
Number of observations	810
Number of dependent variables	5

Number of independent variables 0
 Number of continuous latent variables 2
 Observed dependent variables
 Continuous
 DI SY CR RE ET
 Continuous latent variables
 FW FB
 Variables with special functions
 Cluster variable PRO
 Estimator MLR
 Information matrix OBSERVED
 Maximum number of iterations 1000
 Convergence criterion 0.100D-05
 Maximum number of EM iterations 500
 Convergence criteria for the EM algorithm
 Loglikelihood change 0.100D-02
 Relative loglikelihood change 0.100D-05
 Derivative 0.100D-03
 Minimum variance 0.100D-03
 Maximum number of steepest descent iterations 20
 Maximum number of iterations for H1 2000
 Convergence criterion for H1 0.100D-03
 Optimization algorithm EMA

Input data file(s)

C:\Documents and Settings\Administrator\Desktop\dataa.csv

Input data format FREE

SUMMARY OF DATA

Number of clusters 38

Average cluster size 21.316

Estimated Intraclass Correlations for the Y Variables

	Intraclass		Intraclass		Intraclass
Variable	Correlation	Variable	Correlation	Variable	Correlation
DI	0.047	SY	0.055	CR	0.032
RE	0.051	ET	0.061		

SAMPLE STATISTICS

NOTE: The sample statistics for within and between refer to the

maximum-likelihood estimated within and between covariance matrices, respectively.

ESTIMATED SAMPLE STATISTICS FOR WITHIN

Means

	DI	SY	CR	RE	ET
1	0.000	0.000	0.000	0.000	0.000

Covariances

	DI	SY	CR	RE	ET
DI	0.180				
SY	0.119	0.192			
CR	0.101	0.135	0.182		
RE	0.103	0.136	0.138	0.199	
ET	0.099	0.115	0.122	0.140	0.178

Correlations

	DI	SY	CR	RE	ET
DI	1.000				
SY	0.642	1.000			
CR	0.556	0.724	1.000		
RE	0.545	0.695	0.726	1.000	
ET	0.555	0.621	0.681	0.745	1.000

ESTIMATED SAMPLE STATISTICS FOR BETWEEN

Means

	DI	SY	CR	RE	ET
1	4.412	4.287	4.281	4.337	4.402

Covariances

	DI	SY	CR	RE	ET
DI	0.009				
SY	0.007	0.011			
CR	0.004	0.007	0.006		
RE	0.007	0.011	0.007	0.011	

ET	0.007	0.009	0.006	0.010	0.012
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Correlations

	DI	SY	CR	RE	ET
DI	1.000				
SY	0.735	1.000			
CR	0.615	0.857	1.000		
RE	0.692	0.993	0.866	1.000	
ET	0.666	0.827	0.727	0.863	1.000

THE MODEL ESTIMATION TERMINATED NORMALLY

TESTS OF MODEL FIT

Chi-Square Test of Model Fit

Value	4.163*
Degrees of Freedom	6
P-Value	0.6546
Scaling Correction Factor	1.040

for MLR

* The chi-square value for MLM, MLMV, MLR, ULSMV, WLSM and WLSMV cannot be used for chi-square difference tests. MLM, MLR and WLSM chi-square difference testing is described in the Mplus Technical Appendices at www.statmodel.com. See chi-square difference testing in the index of the Mplus User's Guide.

Chi-Square Test of Model Fit for the Baseline Model

Value	1178.218
Degrees of Freedom	20
P-Value	0.0000

CFI/TLI

CFI	1.000
TLI	1.005

Loglikelihood

H0 Value	-1114.572
H0 Scaling Correction Factor	1.958
for MLR	
H1 Value	-1112.407
H1 Scaling Correction Factor	1.801
for MLR	

Information Criteria

Number of Free Parameters	29
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Akaike (AIC)	2287.143
Bayesian (BIC)	2423.357
Sample-Size Adjusted BIC	2331.265
(n* = (n + 2) / 24)	

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.000
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SRMR (Standardized Root Mean Square Residual)

Value for Within	0.005
Value for Between	0.019

MODEL RESULTS

		Two-Tailed			
		Estimate	S.E.	Est./S.E.	P-Value
Within Level					
FW	BY				
	DI	1.000	0.000	999.000	999.000
	SY	1.335	0.175	7.618	0.000
	CR	1.376	0.157	8.742	0.000
	RE	1.375	0.171	8.042	0.000
	ET	1.195	0.135	8.840	0.000
ET	WITH				
	RE	0.019	0.006	3.281	0.001
	DI	0.012	0.004	2.729	0.006
SY	WITH				
	DI	0.022	0.006	3.791	0.000
Variances					
	FW	0.073	0.017	4.330	0.000
Residual Variances					
	DI	0.107	0.015	7.001	0.000
	SY	0.061	0.005	12.402	0.000
	CR	0.043	0.005	8.393	0.000
	RE	0.060	0.007	8.759	0.000
	ET	0.073	0.008	9.389	0.000
Between Level					
FB	BY				
	DI	1.000	0.000	999.000	999.000
	SY	1.468	0.561	2.617	0.009
	CR	0.971	0.423	2.293	0.022

RE	1.455	0.635	2.292	0.022
ET	1.328	0.503	2.639	0.008
RE WITH				
SY	0.000	0.001	0.281	0.779
Intercepts				
DI	4.412	0.021	207.996	0.000
SY	4.287	0.023	186.483	0.000
CR	4.281	0.019	222.452	0.000
RE	4.336	0.023	190.873	0.000
ET	4.402	0.023	192.588	0.000
Variances				
FB	0.005	0.004	1.390	0.164
Residual Variances				
DI	0.004	0.002	1.580	0.114
SY	0.001	0.002	0.450	0.653
CR	0.001	0.001	1.145	0.252
RE	0.000	0.002	0.147	0.883
ET	0.003	0.001	1.945	0.052

STANDARDIZED MODEL RESULTS

STDYX Standardization

		Estimate	S.E.	Two-Tailed Est./S.E.	P-Value
Within Level					
FW	BY				
DI		0.638	0.065	9.753	0.000
SY		0.826	0.022	37.403	0.000
CR		0.875	0.017	50.780	0.000
RE		0.836	0.022	37.578	0.000
ET		0.768	0.030	25.883	0.000
ET	WITH				
RE		0.292	0.072	4.026	0.000
DI		0.135	0.047	2.852	0.004
SY	WITH				
DI		0.271	0.072	3.745	0.000
Variances					
FW		1.000	0.000	999.000	999.000

Residual Variances

DI	0.593	0.083	7.100	0.000
SY	0.318	0.036	8.731	0.000
CR	0.234	0.030	7.776	0.000
RE	0.301	0.037	8.103	0.000
ET	0.410	0.046	8.987	0.000

Between Level

FB BY

DI	0.748	0.186	4.016	0.000
SY	0.969	0.070	13.781	0.000
CR	0.874	0.086	10.198	0.000
RE	0.986	0.096	10.263	0.000
ET	0.869	0.073	11.850	0.000

RE WITH

SY	0.914	2.573	0.355	0.722
----	-------	-------	-------	-------

Intercepts

DI	47.244	9.247	5.109	0.000
SY	40.494	7.931	5.105	0.000
CR	55.129	19.797	2.785	0.005
RE	42.056	7.937	5.299	0.000
ET	41.233	7.059	5.841	0.000

Variances

FB	1.000	0.000	999.000	999.000
----	-------	-------	---------	---------

Residual Variances

DI	0.440	0.279	1.580	0.114
SY	0.061	0.136	0.449	0.653
CR	0.237	0.150	1.583	0.113
RE	0.028	0.189	0.149	0.882
ET	0.245	0.127	1.919	0.055

STDY Standardization

Two-Tailed

Estimate S.E. Est./S.E. P-Value

Within Level

FW BY

DI	0.638	0.065	9.753	0.000
SY	0.826	0.022	37.403	0.000
CR	0.875	0.017	50.780	0.000

RE	0.836	0.022	37.578	0.000
ET	0.768	0.030	25.883	0.000
ET WITH				
RE	0.292	0.072	4.026	0.000
DI	0.135	0.047	2.852	0.004
SY WITH				
DI	0.271	0.072	3.745	0.000
Variances				
FW	1.000	0.000	999.000	999.000
Residual Variances				
DI	0.593	0.083	7.100	0.000
SY	0.318	0.036	8.731	0.000
CR	0.234	0.030	7.776	0.000
RE	0.301	0.037	8.103	0.000
ET	0.410	0.046	8.987	0.000
Between Level				
FB BY				
DI	0.748	0.186	4.016	0.000
SY	0.969	0.070	13.781	0.000
CR	0.874	0.086	10.198	0.000
RE	0.986	0.096	10.263	0.000
ET	0.869	0.073	11.850	0.000
RE WITH				
SY	0.914	2.573	0.355	0.722
Intercepts				
DI	47.244	9.247	5.109	0.000
SY	40.494	7.931	5.105	0.000
CR	55.129	19.797	2.785	0.005
RE	42.056	7.937	5.299	0.000
ET	41.233	7.059	5.841	0.000
Variances				
FB	1.000	0.000	999.000	999.000
Residual Variances				
DI	0.440	0.279	1.580	0.114
SY	0.061	0.136	0.449	0.653
CR	0.237	0.150	1.583	0.113

RE		0.028	0.189	0.149	0.882
ET		0.245	0.127	1.919	0.055
STD Standardization					
				Two-Tailed	
		Estimate	S.E.	Est./S.E.	P-Value
Within Level					
FW	BY				
DI		0.271	0.031	8.659	0.000
SY		0.362	0.020	17.726	0.000
CR		0.373	0.015	25.518	0.000
RE		0.373	0.019	19.613	0.000
ET		0.324	0.021	15.197	0.000
ET	WITH				
RE		0.019	0.006	3.281	0.001
DI		0.012	0.004	2.729	0.006
SY	WITH				
DI		0.022	0.006	3.791	0.000
Variances					
FW		1.000	0.000	999.000	999.000
Residual Variances					
DI		0.107	0.015	7.001	0.000
SY		0.061	0.005	12.402	0.000
CR		0.043	0.005	8.393	0.000
RE		0.060	0.007	8.759	0.000
ET		0.073	0.008	9.389	0.000
Between Level					
FB	BY				
DI		0.070	0.025	2.780	0.005
SY		0.103	0.022	4.643	0.000
CR		0.068	0.026	2.583	0.010
RE		0.102	0.020	4.961	0.000
ET		0.093	0.020	4.644	0.000
RE	WITH				
SY		0.000	0.001	0.281	0.779
Intercepts					
DI		4.412	0.021	207.996	0.000

SY	4.287	0.023	186.483	0.000
CR	4.281	0.019	222.452	0.000
RE	4.336	0.023	190.873	0.000
ET	4.402	0.023	192.588	0.000

Variances

FB	1.000	0.000	999.000	999.000
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Residual Variances

DI	0.004	0.002	1.580	0.114
SY	0.001	0.002	0.450	0.653
CR	0.001	0.001	1.145	0.252
RE	0.000	0.002	0.147	0.883
ET	0.003	0.001	1.945	0.052

R-SQUARE

Within Level

Observed	Two-Tailed			
Variable	Estimate	S.E.	Est./S.E.	P-Value
DI	0.407	0.083	4.877	0.000
SY	0.682	0.036	18.702	0.000
CR	0.766	0.030	25.390	0.000
RE	0.699	0.037	18.789	0.000
ET	0.590	0.046	12.941	0.000

Between Level

Observed	Two-Tailed			
Variable	Estimate	S.E.	Est./S.E.	P-Value
DI	0.560	0.279	2.008	0.045
SY	0.939	0.136	6.890	0.000
CR	0.763	0.150	5.099	0.000
RE	0.972	0.189	5.131	0.000
ET	0.755	0.127	5.925	0.000

QUALITY OF NUMERICAL RESULTS

Condition Number for the Information Matrix 0.177E-06

(ratio of smallest to largest eigenvalue)

RESIDUAL OUTPUT

ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED) FOR WITHIN

Model Estimated Means

DI SY CR RE ET

1	0.000	0.000	0.000	0.000	0.000
---	-------	-------	-------	-------	-------

Residuals for Means

	DI	SY	CR	RE	ET
--	----	----	----	----	----

1	0.000	0.000	0.000	0.000	0.000
---	-------	-------	-------	-------	-------

Model Estimated Covariances

	DI	SY	CR	RE	ET
--	----	----	----	----	----

DI	0.180				
SY	0.120	0.192			
CR	0.101	0.135	0.182		
RE	0.101	0.135	0.139	0.199	
ET	0.100	0.117	0.121	0.140	0.178

Residuals for Covariances

	DI	SY	CR	RE	ET
--	----	----	----	----	----

DI	0.000				
SY	-0.001	0.000			
CR	-0.001	0.000	0.000		
RE	0.002	0.001	-0.001	0.000	
ET	0.000	-0.002	0.002	0.000	0.000

ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED) FOR BETWEEN

Model Estimated Means

	DI	SY	CR	RE	ET
--	----	----	----	----	----

1	4.412	4.287	4.281	4.336	4.402
---	-------	-------	-------	-------	-------

Residuals for Means

	DI	SY	CR	RE	ET
--	----	----	----	----	----

1	0.000	0.000	0.000	0.000	0.000
---	-------	-------	-------	-------	-------

Model Estimated Covariances

	DI	SY	CR	RE	ET
--	----	----	----	----	----

DI	0.009				
SY	0.007	0.011			
CR	0.005	0.007	0.006		
RE	0.007	0.011	0.007	0.011	

ET 0.006 0.010 0.006 0.009 0.011

Residuals for Covariances

	DI	SY	CR	RE	ET
DI	0.000				
SY	0.000	0.000			
CR	0.000	0.000	0.000		
RE	0.000	0.000	0.000	0.000	
ET	0.000	0.000	0.000	0.000	0.000

MODEL MODIFICATION INDICES

NOTE: Modification indices for direct effects of observed dependent variables regressed on covariates may not be included. To include these, request MODINDICES (ALL).

Minimum M.I. value for printing the modification index 5.000

M.I. E.P.C. Std E.P.C. StdYX E.P.C.

Within Level

Between Level

No modification indices above the minimum value.

RESULTS SAVING INFORMATION

There was an error opening the RESULTS file for writing. No results were saved. The path may not exist for the following file:

C:\Documents and Settings\Administrator\Desktop

Beginning Time: 13:12:12

Ending Time: 13:12:13

Elapsed Time: 00:00:01

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