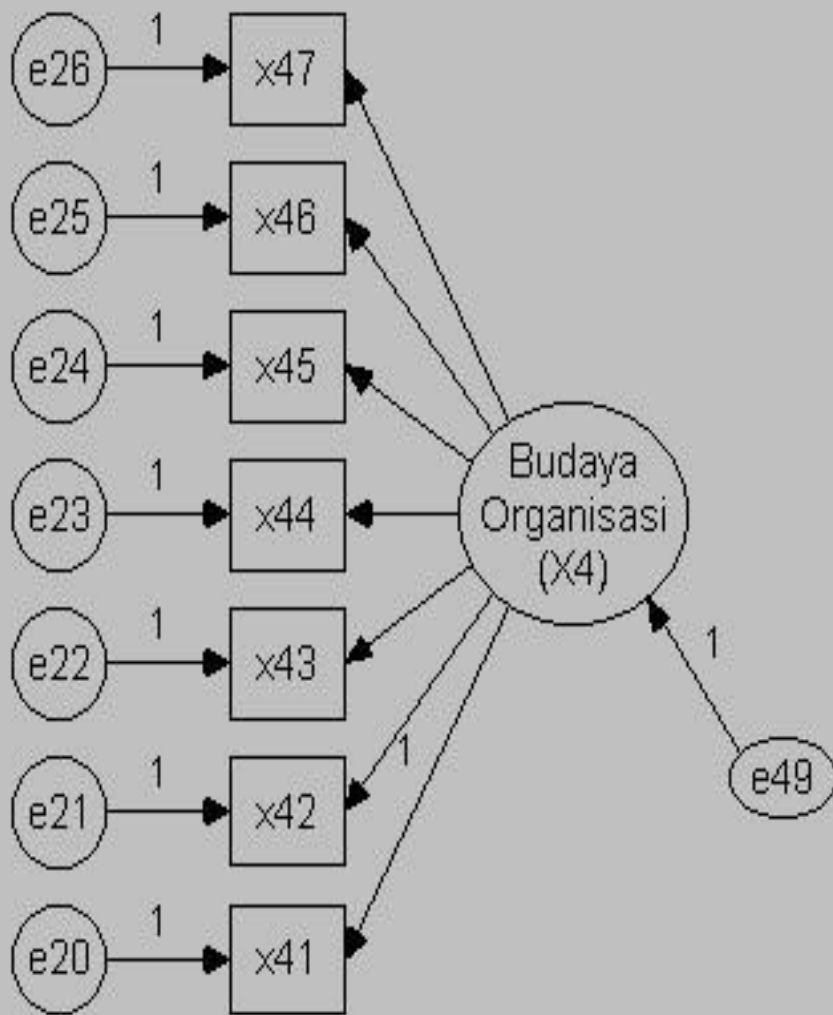




APLIKASI STRUCTURAL EQUATION MODELING (SEM)

Aplikasi Software AMOS

Zaenal Fanani



Goodness of Fit

Chi Square = χ^2

$p = p$

CMIN/DF = χ^2/df

GFI = χ^2/gfi

AGFI = $\chi^2/agfi$

TLI = χ^2/tli

CFI = χ^2/cfi

RMSEA = $\chi^2/rmse$

MODIFICATION INDICES

The screenshot shows the 'Modification Indices' window in AMOS. The window title is 'E:\Data\Data\Pelatihan\AMOS\Pelatihan pasca\File\Modification Indices\Budaya Organisasi'. The menu bar includes 'File', 'Edit', 'Format', and 'Help'. The toolbar shows a zoom level of 100%, a printer icon, a save icon, a refresh icon, and a dropdown menu with the value '3'. The left sidebar contains a tree view with the following items: 'Notes for Group', 'Notes for Model', 'Estimates', 'Regression Weigh', 'Standardized Regr', 'Variances', 'Matrices', 'Modification Indices' (highlighted), 'Fit', 'Fit Measures 1', and 'Fit Measures 2'. The main area displays the 'Modification Indices' table, which is divided into three sections: 'Covariances', 'Variances', and 'Regression Weig'. A callout box points to the first row of the 'Covariances' section, which shows a double-headed arrow between e24 and e20.

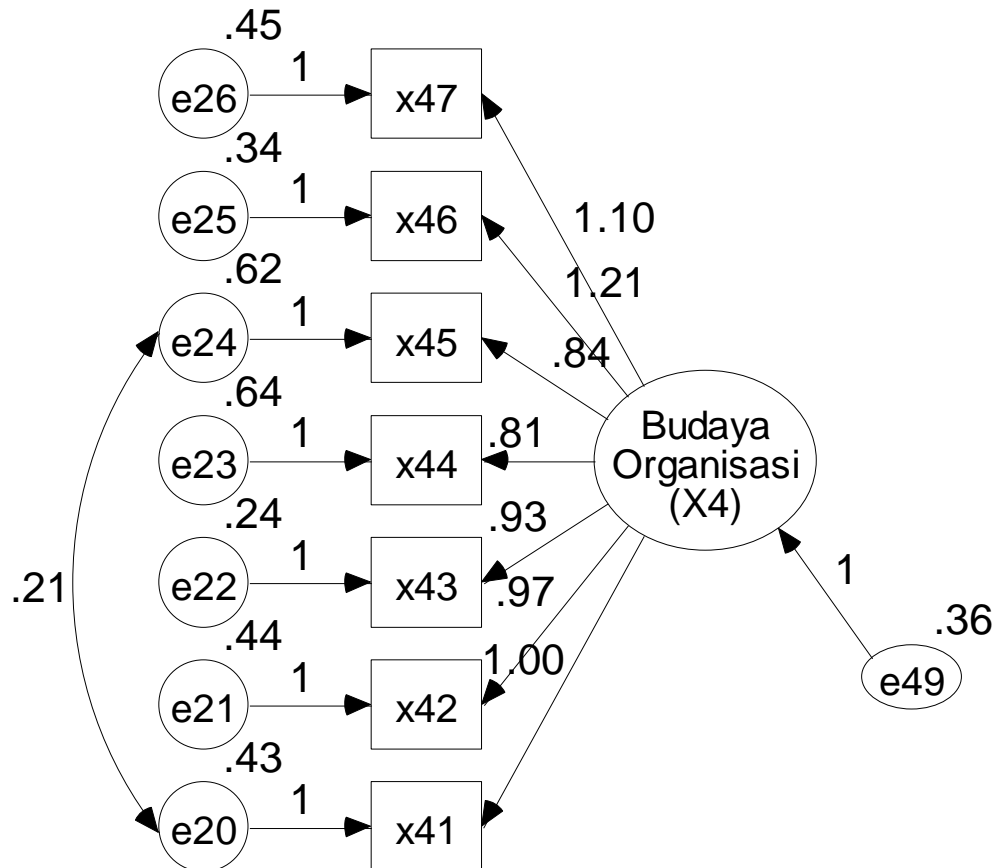
Covariances:		M.I.	Par Change
e24 ↔ e20		11.157	0.179
e24 ↔ e26		10.028	-0.189
e22 ↔ e20		7.902	-0.107

Variances:		M.I.	Par Change

Regression Weig		M.I.	Par Change
x41 ← x45		6.574	0.191
x47 ← x45		5.883	-0.202
x45 ← x41		4.552	0.195
x45 ← x47		4.914	-0.191

Hubungkan dengan panah dua arah antara e24 dengan e20

Output Hasil Modification Indices



Goodness of Fit

Chi Square = 27.355
p = .011
CMIN/DF = 2.104
GFI = .927
AGFI = .843
TLI = .901
CFI = .939
RMSEA = .110

MODIFICATION INDICES

The screenshot shows the AMOS software interface with the 'Modification Indices' window open. The window title is 'E:\Data\Data\Pelatihan\AMOS\Pelatihan pasca\File\Modification Indices\Budaya Organisasi'. The left sidebar shows a tree view with 'Modification Indices' selected. The main area displays three tables: 'Covariances', 'Variances', and 'Regression Weig'. A callout box points to the relationship between error terms e24 and e26 in the 'Covariances' table.

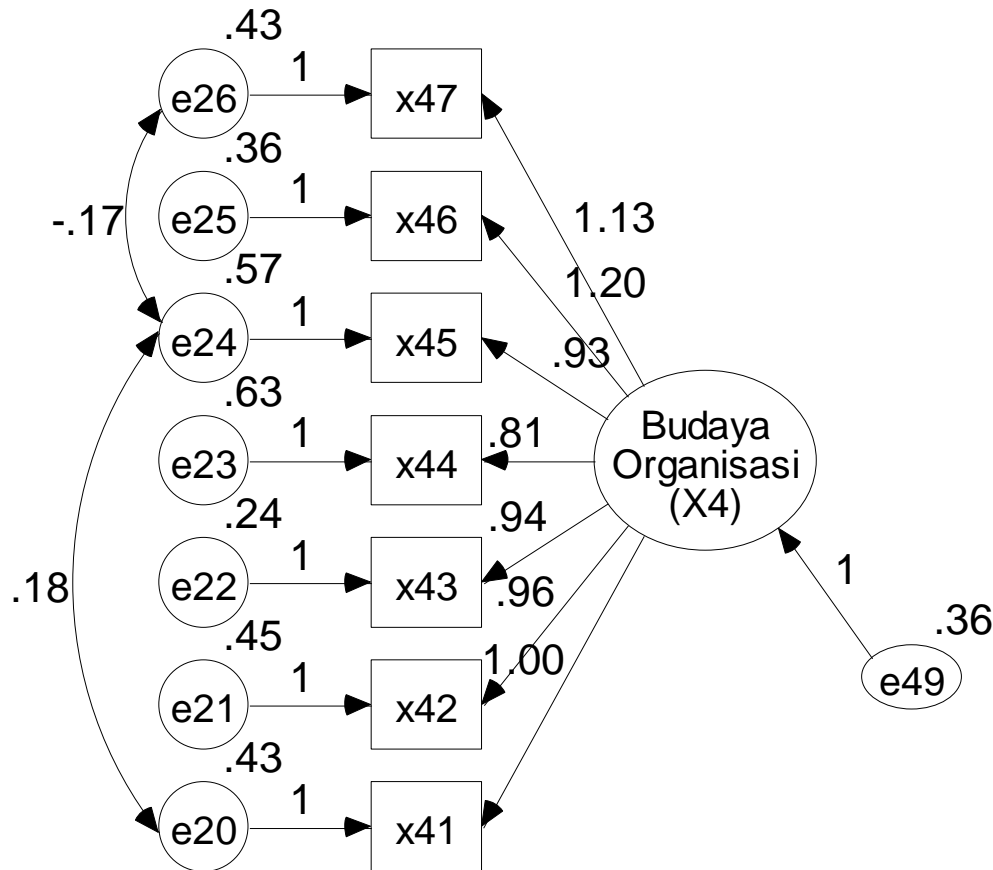
Covariances:		M.I.	Par Change
e24 ↔ e26	8.223	-0.159	
e22 ↔ e20	6.775	-0.092	
e21 ↔ e25	4.064	-0.098	

Variances:		M.I.	Par Change
x47 ← x45	4.388	-0.171	

Regression Weig		M.I.	Par Change
x47 ← x45	4.388	-0.171	

Hubungkan dengan panah dua arah antara e24 dengan e26

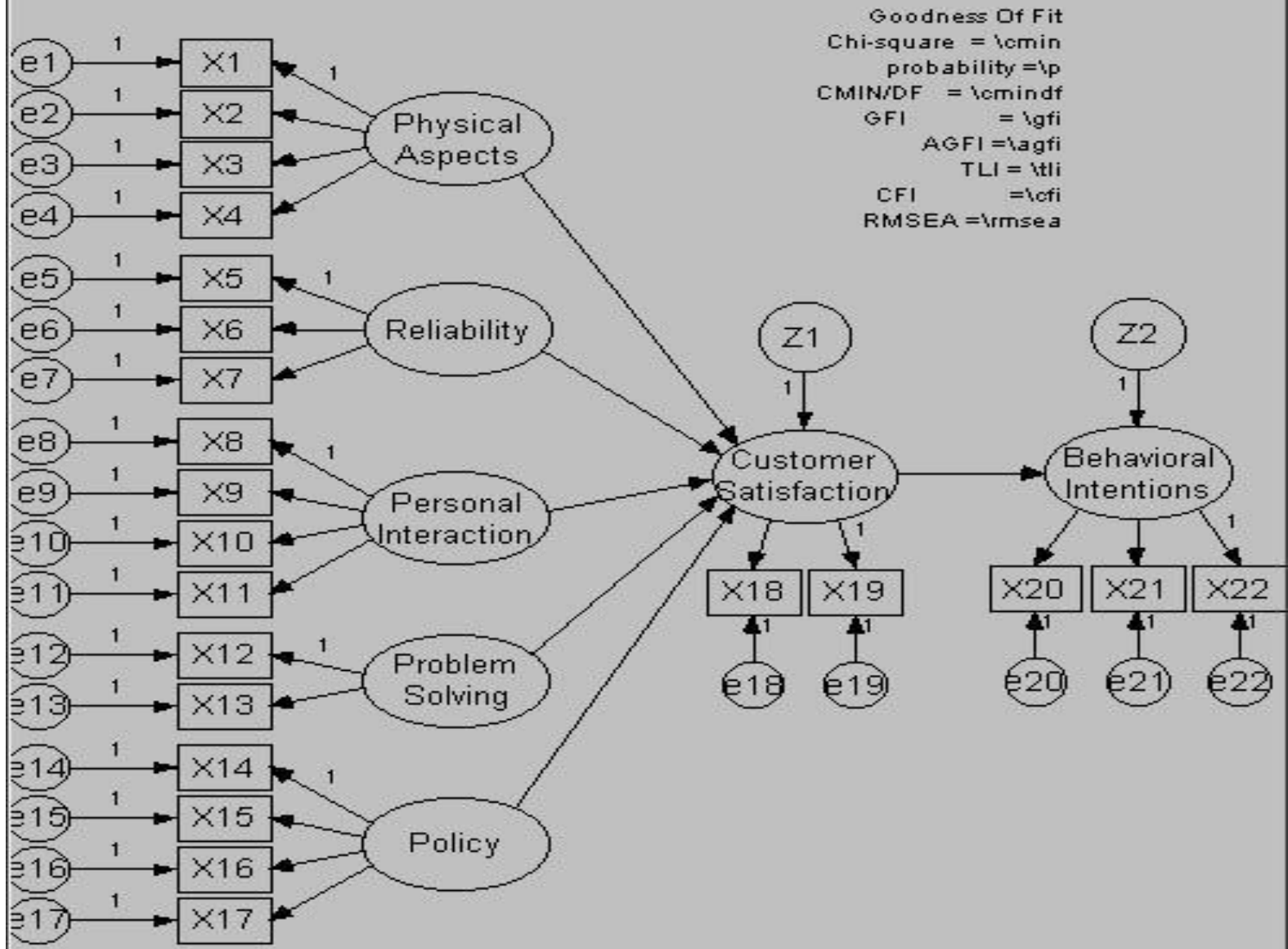
Output Hasil Modification Indices



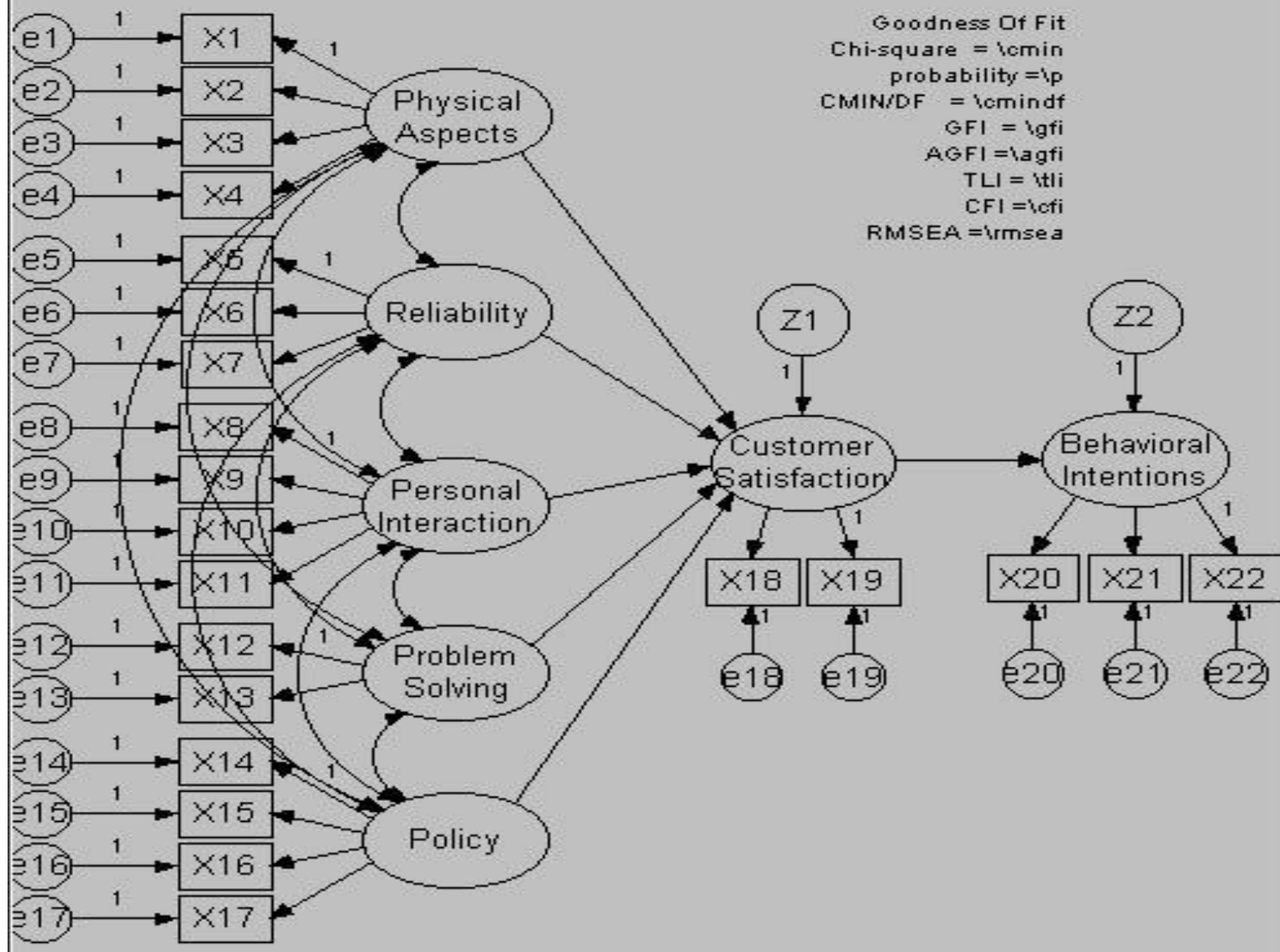
Goodness of Fit

Chi Square = 17.682
 p = .126
 CMIN/DF = 1.474
 GFI = .953
 AGFI = .891
 TLI = .958
 CFI = .976
 RMSEA = .072

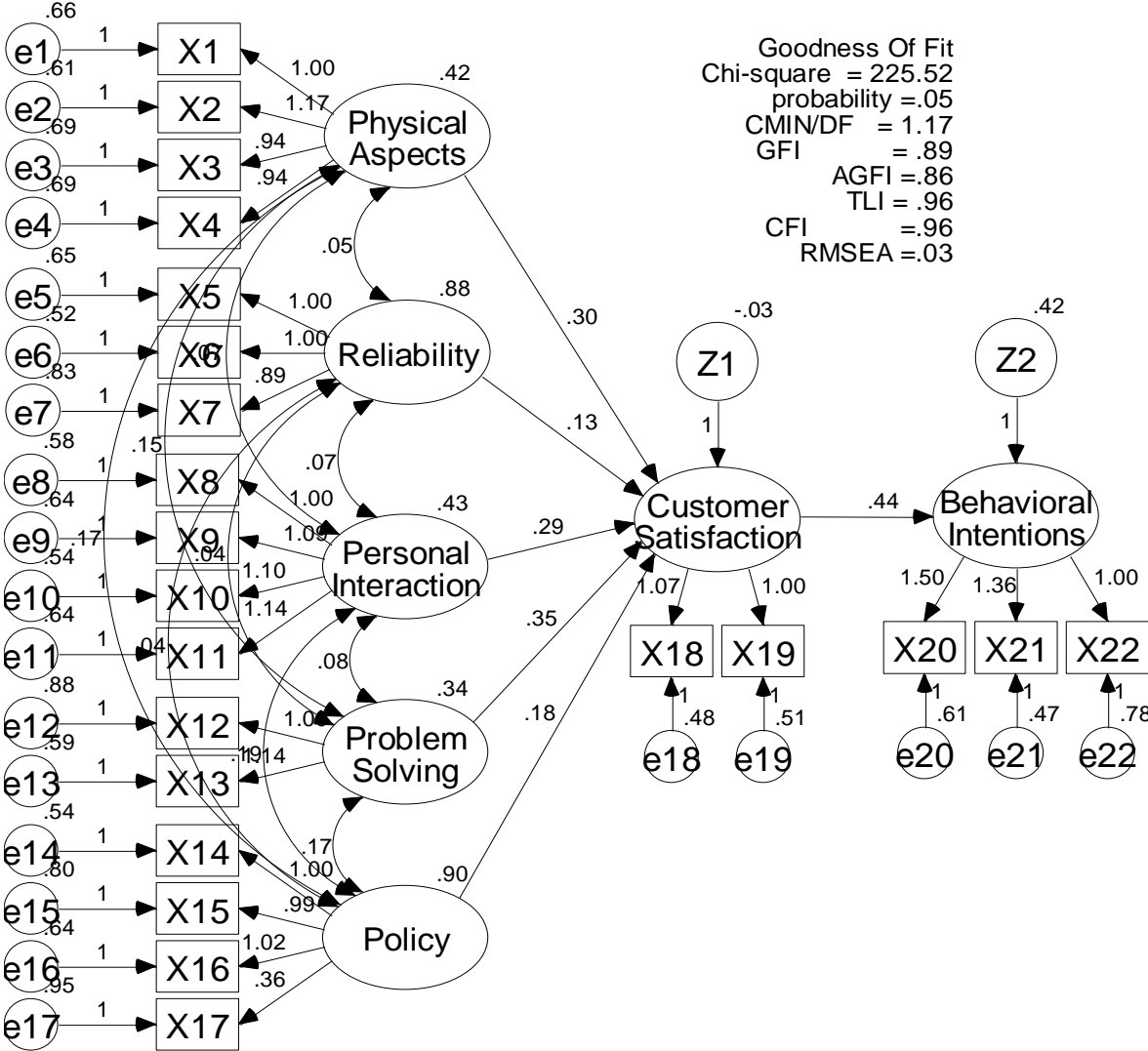
STRUCTURAL EQUATION MODELING



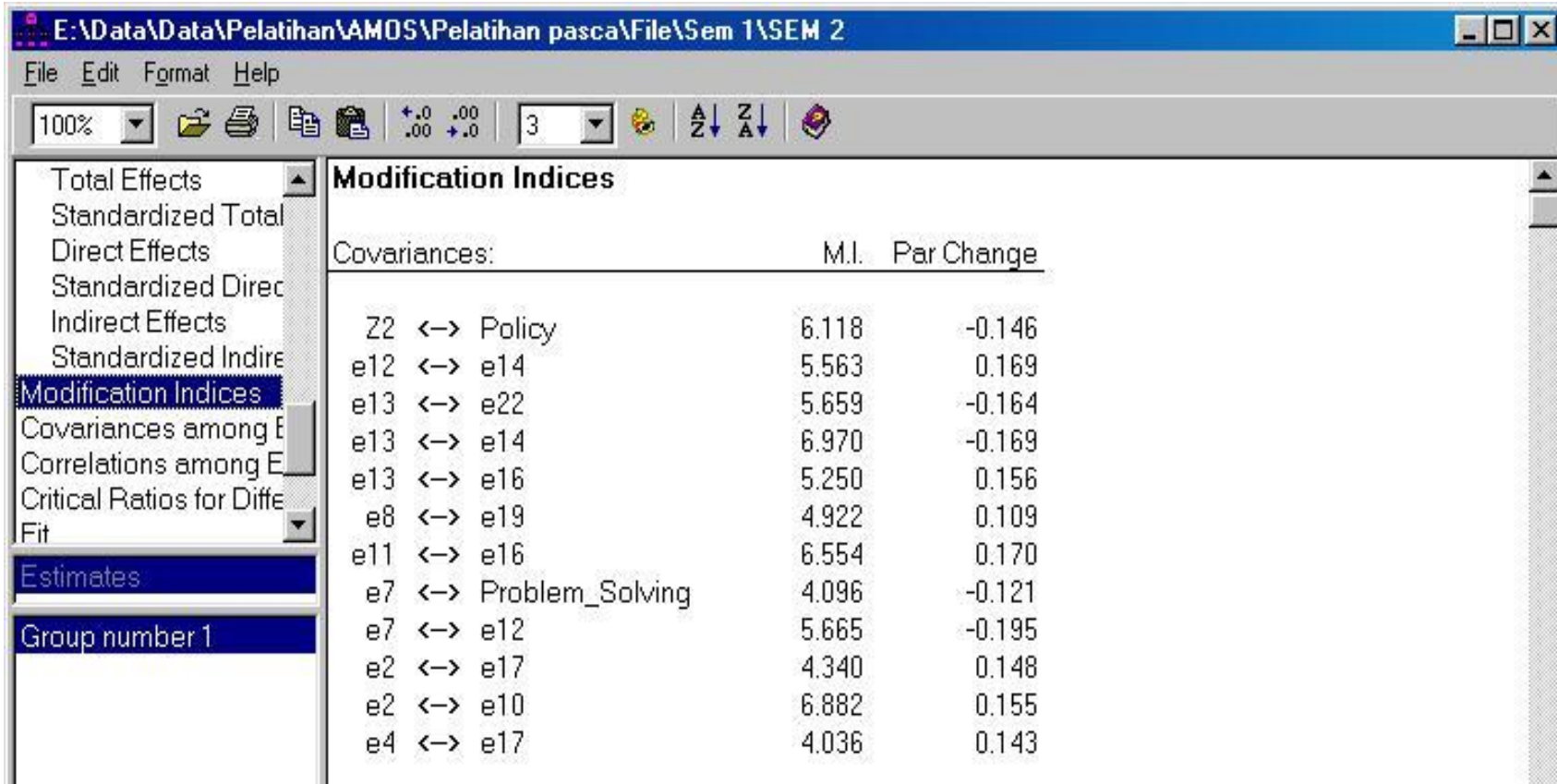
STRUCTURAL EQUATION MODELLING



STRUCTURAL EQUATION MODELLING



MODIFICATION INDICES



E:\Data\Data\Pelatihan\AMOS\Pelatihan pasca\File\Sem 1\SEM 2

File Edit Format Help

100% 3

Modification Indices

Covariances:

	M.I.	Par Change
Z2 ↔ Policy	6.118	-0.146
e12 ↔ e14	5.563	0.169
e13 ↔ e22	5.659	-0.164
e13 ↔ e14	6.970	-0.169
e13 ↔ e16	5.250	0.156
e8 ↔ e19	4.922	0.109
e11 ↔ e16	6.554	0.170
e7 ↔ Problem_Solving	4.096	-0.121
e7 ↔ e12	5.665	-0.195
e2 ↔ e17	4.340	0.148
e2 ↔ e10	6.882	0.155
e4 ↔ e17	4.036	0.143

PEMBUKTIAN HIPOTESIS

Variabel indikator konstruk			Loading Factor	T Hitung	Prob	Ket
Customer_Satisfaction	<--	Physical_Aspects	0.301	2.769**	0.006	Sign
Customer_Satisfaction	<--	Reliability	0.126	2.380*	0.017	Sign
Customer_Satisfaction	<--	Personal_Interaction	0.287	3.216**	0.001	Sign
Customer_Satisfaction	<--	Problem_Solving	0.351	2.529*	0.011	Sign
Customer_Satisfaction	<--	Policy	0.180	2.934**	0.003	Sign
Behavioral_Intentions	<--	Customer_Satisfaction	0.437	2.907**	0.004	Sign

*Signifikan pada level 5 %, Nilai t table level 5 % = 1.98

** Signifikan pada level 1 %, Nilai t table level 1 % = 2.576.98

DIRECT, INDIRECT, TOTAL EFFECT

H	Variabel Dependen	Variabel Independen	Efek			Koef Path (p value)	Keputusan
			Direct	indirect	Total		
H1	Customer_Satisfaction	Physical_Aspects	0.377	0.000	0.377	0.006	Diterima
H2	Customer_Satisfaction	Reliability	0.229	0.000	0.229	0.017	Diterima
H3	Customer_Satisfaction	Personal_Interaction	0.363	0.000	0.363	0.001	Diterima
H4	Customer_Satisfaction	Problem_Solving	0.396	0.000	0.396	0.011	Diterima
H5	Customer_Satisfaction	Policy	0.332	0.000	0.332	0.003	Diterima
H6	Behavioral_Intentions	Customer_Satisfaction	0.329	0.000	0.329	0.004	Diterima

NORMALITY

Assessment of normality

	min	max	skew	c.r.	kurtosis	c.r.
X20	1.000	7.000	-0.956	-4.844	0.908	2.300
X21	1.000	7.000	-0.871	-4.411	1.008	2.553
X22	1.000	7.000	-1.308	-6.625	2.629	6.659
X18	3.000	7.000	-0.264	-1.337	-0.393	-0.995
X19	3.000	7.000	-0.417	-2.113	0.033	0.085
X14	3.000	7.000	-0.412	-2.087	-0.700	-1.774
X15	1.000	7.000	-0.777	-3.935	0.273	0.693
X16	1.000	7.000	-1.200	-6.081	1.821	4.612
X17	2.000	7.000	-0.543	-2.753	0.128	0.323
X12	1.000	7.000	-0.916	-4.639	1.610	4.078
X13	2.000	7.000	-0.825	-4.178	1.194	3.026
X8	2.000	7.000	-0.529	-2.678	0.240	0.609
X9	2.000	7.000	-0.664	-3.366	0.492	1.246
X10	2.000	7.000	-0.394	-1.995	0.164	0.415
X11	1.000	7.000	-0.826	-4.183	1.418	3.593
X5	1.000	7.000	-0.972	-4.927	1.363	3.453
X6	1.000	7.000	-0.747	-3.785	0.632	1.601
X7	1.000	7.000	-1.204	-6.102	2.059	5.215
X1	2.000	7.000	-0.775	-3.927	0.561	1.421
X2	3.000	7.000	-0.305	-1.546	-0.774	-1.961
X3	3.000	7.000	-0.269	-1.363	-0.289	-0.733
X4	1.000	7.000	-0.850	-4.305	1.612	4.084
Multivariate					20.460	3.907

Skewness < CR (skew) → Normal

Kurtosis < CR (Kurt.) → Normal

Contoh diatas: Univariate → NORMAL

Multivariate → TDK NORMAL

**Lihat Ghozali (2002:75), David Kaluge,
(2004:38),**

Univariate Outlier

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Zscore(X1)	154	-3.59654	1.19470	.0000000	1.0000000
Zscore(X2)	154	-2.35953	1.31085	.0000000	1.0000000
Zscore(X3)	154	-2.43217	1.44922	.0000000	1.0000000
Zscore(X4)	154	-4.49326	1.31342	.0000000	1.0000000
Zscore(X5)	154	-3.61945	1.20648	.0000000	1.0000000
Zscore(X6)	154	-3.69600	1.37845	.0000000	1.0000000
Zscore(X7)	154	-3.60058	1.24918	.0000000	1.0000000
Zscore(X8)	154	-3.62497	1.34163	.0000000	1.0000000
Zscore(X9)	154	-3.34426	1.30390	.0000000	1.0000000
Zscore(X10)	154	-3.42245	1.43075	.0000000	1.0000000
Zscore(X11)	154	-4.17183	1.30370	.0000000	1.0000000
Zscore(X12)	154	-4.19562	1.22641	.0000000	1.0000000
Zscore(X13)	154	-3.57308	1.34869	.0000000	1.0000000
Zscore(X14)	154	-2.08399	1.23316	.0000000	1.0000000
Zscore(X15)	154	-3.49701	1.10589	.0000000	1.0000000
Zscore(X16)	154	-3.76822	.98190	.0000000	1.0000000
Zscore(X17)	154	-3.48060	1.33966	.0000000	1.0000000
Zscore(X18)	154	-3.05955	1.43850	.0000000	1.0000000
Zscore(X19)	154	-3.05943	1.46002	.0000000	1.0000000
Zscore(X20)	154	-3.54698	1.08213	.0000000	1.0000000
Zscore(X21)	154	-4.00320	1.14138	.0000000	1.0000000
Zscore(X22)	154	-4.31253	1.02184	.0000000	1.0000000
Valid N (listwise)	154				

observasi-observasi yang mempunyai z-score > 4.0
akan dikategorikan sebagai *outliers* (Ferdinand, 2002:94)

Multivariate Outlier

Observatio number	Mahalanobis d-squared	p1	p2
109	49.796	0.001	0.092
75	48.790	0.001	0.008
144	41.742	0.007	0.086
153	41.567	0.007	0.024
88	40.975	0.008	0.010
49	38.324	0.017	0.047
148	37.928	0.019	0.026
149	37.551	0.021	0.015
92	36.437	0.027	0.026
69	35.432	0.035	0.044
137	35.197	0.037	0.028

.....

47	18.861	0.654	0.957
138	18.852	0.654	0.941
73	18.796	0.658	0.932
59	18.644	0.667	0.942
72	18.627	0.668	0.924
136	18.557	0.673	0.916
35	18.457	0.679	0.915
20	18.429	0.680	0.894
48	18.191	0.695	0.929
126	17.947	0.709	0.955

Jika Mahalanobis Distance > Chi Square (X^2) Tabel
Maka Terjadi Multivariate Outlier
Dalam Kasus ini besarnya X^2 T tabel = 48.268
22 Variabel dengan $P < 0.001$ (Lihat Gujarati 1997:399)